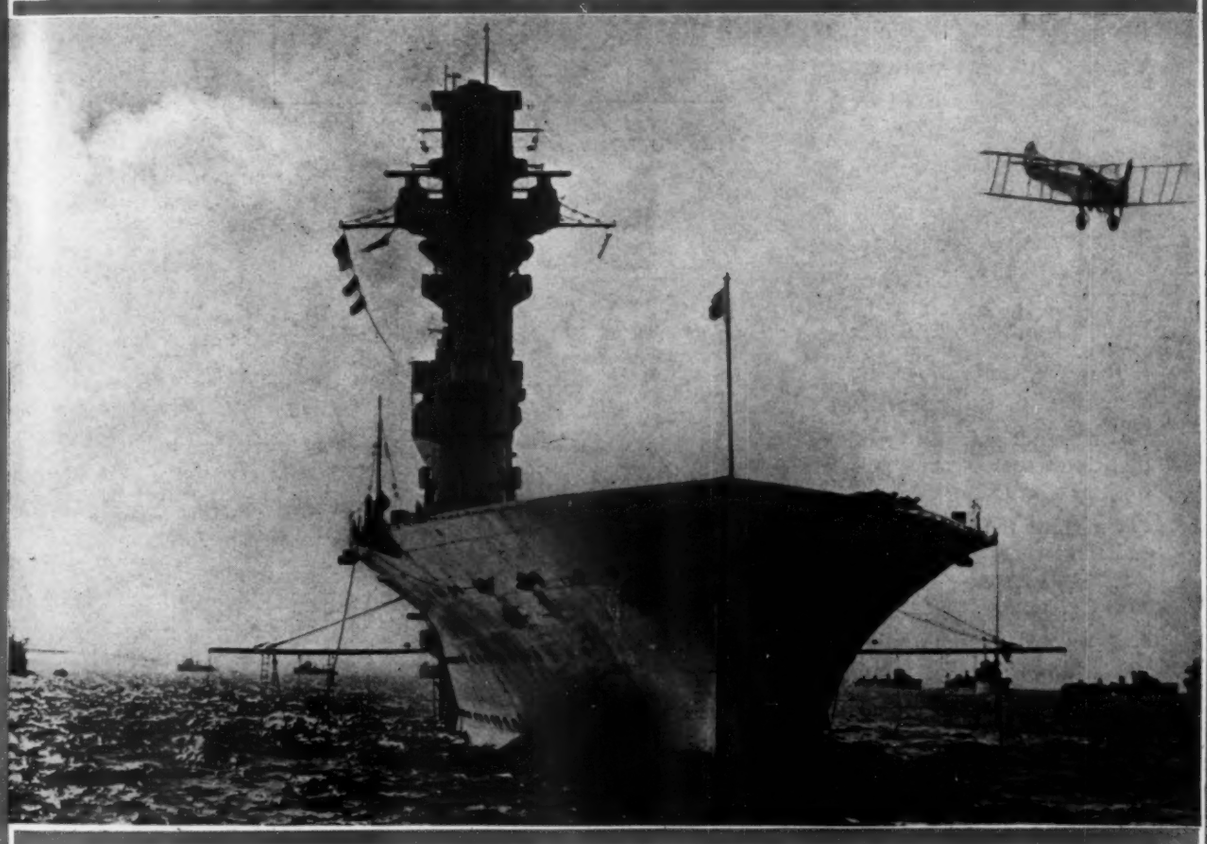
AVIATION

The Oldest American Aeronautical Magazine

OCTOBER 12, 1925 Issued Weekly PRICE 10 CENTS



The British Aircraft Carrier H.M.S. Hermes

P. & A. Photo

VOLUME XIX

NUMBER 15

SPECIAL FEATURES

ANTI-STALL SAFETY DEVICE

THE FINISH OF THE FORD AIRPLANE TOUR

COL. MITCHELL'S CONCLUSIONS ON AIR DEFENSE POLICY

GARDNER PUBLISHING CO., INC.
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225 FOURTH AVENUE, NEW YORK

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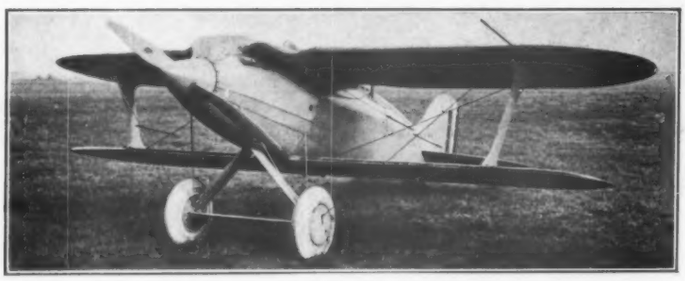
SPEED WITH SAFETY

Curtiss



CURTISS PULITZER RACER, 1925

Bringing Out the Thoroughbred Strain

Racing at better than 250 miles an hour may strike you as the most spectacular speed test in the world.

In reality it is far more.

Your horse of today represents years spent in bringing out the thoroughbred strain.

You may not want an "Abdulla" for the simple needs of every day. But you surely profit by every particle of speed, courage, and bone, developed in the training stable and on the track.

Most of you do not want to be shot through the air in a Pulitzer entry at cannon ball speed, but right at this moment the air service has been developed to the point where your letters which go by air are *safer* and three times faster than if they went by the regular registered mail.

Since 1908, when Glenn Curtiss won the Scientific American Trophy for the first previously announced public flight ever achieved in the United States, in each department of aeronautics to which attention has been devoted, the Curtiss organization has surpassed all competition.

These tests have made possible the finest fighting planes in the world. They have not only produced in Curtiss motors the greatest power and strength for weight, but they mark the greatest advances in aeronautical engineering, whether it be the sparless wing, the wing radiator, the metal propeller, or the host of minor improvements; all outstanding examples of Curtiss creative activity.

The net result is a commercial plane of thoroughbred strain, low selling price, and high performance.

America stands today on the very threshold of commercial flying. Your business letter of unlimited length, sent this afternoon, can be delivered in Chicago by air mail before banks open tomorrow, for less than you can send a fifty word night message. Curtiss now offers two commercial machines—The Carrier Pigeon, selected by the National Air Transport for its trunk lines—the Lark, a smaller machine suitable for feeder lines and other commercial uses.

With these models as a nucleus, the Curtiss organization will do for commercial aviation what it has already done for National Defense.

CURTISS AEROPLANE & MOTOR COMPANY, INC.

GARDEN CITY, N. Y. BUFFALO, N. Y.

ON TO NEW YORK FOR THE 1925 AIR RACES,
MITCHEL FIELD, L. I. OCTOBER 8TH, 9TH, 10TH; 1925

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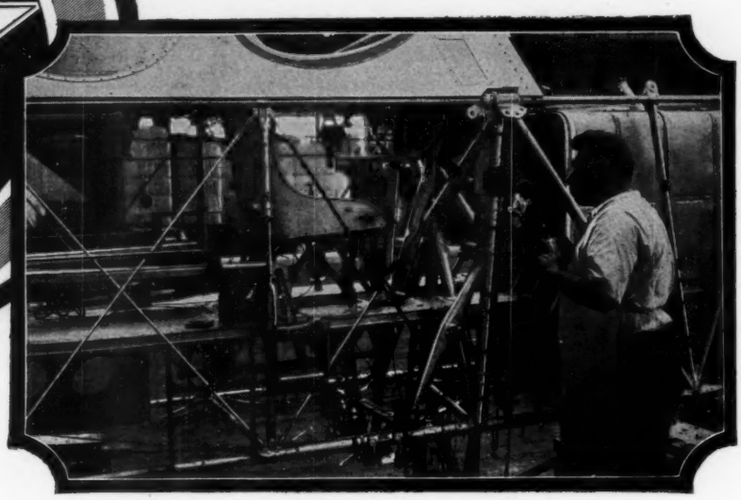

Master Craftsmen in a New Art

THE manufacture of aircraft is peculiar in this—in only a handful of localities is experienced aircraft labor available.

The Glenn L. Martin Co. is particularly fortunate on two points—first, that Cleveland furnishes a continuously ample supply of painstaking mechanics trained in precision work; second, that The Glenn L. Martin Company has collected and held together a factory organization of the most proficient of these men and has developed them into expert aircraft workers. The development of such a personnel is not an overnight process—it is the fruit of years of effort. The purchaser of a Martin plane is safeguarded by this experienced craftsmanship.

On to New York for the New York 1925 Air Races at Mitchel Field, Long Island, October 8th, 9th and 10th

When Writing to Advertisers, Please Mention AVIATION

The Airship

RISING again and again above disappointments and failures which would have crushed ordinary men, those two indomitable spirits of progress, Wilbur Wright and Orville Wright flew the first successful heavier-than-air machine at Kitty Hawk, North Carolina, twenty two years ago.

OBSTACLE with them was spelled—
O-P-P-O-R-T-U-N-I-T-Y

THEIR spirit was truly American, unconquered and unconquerable. The Shenandoah disaster will not stop progress in lighter-than-air. It will encourage progress. It is not the American way to give up in the face of defeat.

FOR those who hesitate, let them be reminded that it is a high honor to participate in man's last and final accomplishment in the development of a rapid, convenient mode of transportation, which eventually will give each individual in ANY part of the world, a common, economic interest in EVERY other part of the world.

THE AIRSHIP is not alone an instrument of war—more important, it is a MESSENGER OF PEACE.

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Goodyear builds airships, and balloons, of every type and size, and makes everything in rubber for the airplane. Write Goodyear, Akron, Ohio, for any information you want.

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GOODYEAR

AVIATION EQUIPMENT

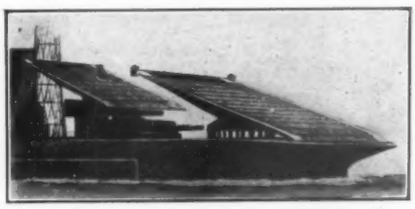
The Gibbons Landing and Launching Device Applied to the Battleship

THE accompanying illustrations show proposed locations for the Installation of The Gibbons Air Vehicle Landing and Launching Device on Battle Ships.

Two sizes are shown; either one may be used. The small or turret mounted device is for scout and light combat planes, the large or deck mounted device is for bombers, etc.

The Gibbons device will handle small or large planes and function at all times if placed on a stabilized ship. Thus a device capable of handling a 10,000 lb. plane can handle the small air flivver just as efficiently, its range being from 0 to maximum capacity.

The large device is 70′ x 200′ and can be lowered by means of jacks or other mechanical device so that the landing surface forms part of the main deck and allows freedom of gun action.



PERSPECTIVE VIEW OF AFTER PART OF SHIP

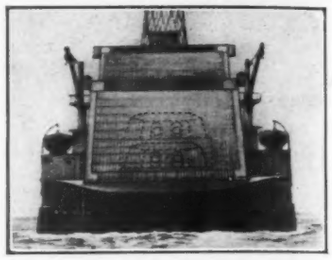
Provision can be made to take care of water from rain or other sources.

The small device is so mounted on the turret that when the landing end is elevated and the platform locked the turret can revolve under the device as the training gear of the device is disengaged.

The elevation of the device to 15 degrees at the locking position allows a 30 degrees elevation on the guns of the turret upon which it is mounted when the guns are trained due aft. If the guns are trained athwartship the elevation is limited only by the gun mount construction. The training gear engages as soon as the device is unlocked. The device for turret use is 35′ x 140′.

All Gibbons Air Vehicle Landing and Launching Devices are built on the same plan and operate on the same principle, that is, the device is trained so that the plane always lands against the wind and up an incline of 15 degrees. Means are provided to remove the air from under the wings of a plane, thus causing the plane to rest firmly on the surface of the device. Suitable guides and retarding devices are provided. The retarding devices are adjustable so that they will accommodate a large or small plane and have a 25% safety factor. This is accomplished by the platform pilot.

The control of the entire device is located in two pilot houses placed at the end. The controls are interlocking with visible and audible signals so arranged that operation can be carried on in only one pilot house, but should any control fail, the second pilot can immediately take over the control from his pilot house. An automatic control is attached to the wind-vanes so that the device is always headed into the wind unless otherwise desired by the operator.



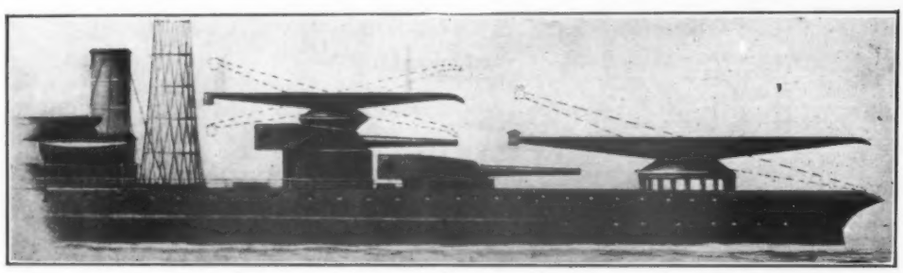
STERN VIEW SHOWING ELEVATION OF DEVICE

The turret device is so located that there are several methods by which planes can be handled when in operation, such as a ramp to the superstructure, a swing boom, etc.

Planes for the deck device can be easily handled by means of a portable ramp located in the deck.

To install either of these devices certain alterations must be made, but the advantages gained would be:

1 Maximum scouting efficiency.
2 Maximum air and sea combat efficiency.
3 With ships equipped for air service it would be difficult for an enemy to carry out a surprise attack.
4 All the benefits of an airplane carrier without its numerous disadvantages.
5 Decrease in personnel with higher air efficiency.
6 Less cost of maintenance of planes due to the fact that the Gibbons Device will handle any type of the present land or amphibian planes now in use without any change in construction, addition of parts or devices to the planes, and that there is no unnecessary structural strain on the planes when landing, as is the case on the airplane carriers.



VIEW OF AFTER PART OF SHIP SHOWING RELATIVE POSITIONS OF DEVICE

Aside from strictly naval use this device offers great advantages for:

1 Ambulance service.
2 Mail Service.
3 Charting for Geodetic Surveys.
4 Aerial Photography.
5 Coast and Harbor Patrol, etc.
6 In fact any service in which an airplane can be used, with the additional advantage that the landing field can always be moved near the place of operation.

Within a few weeks we will publish in AVIATION, for the first time, a photograph of the working model of the Gibbons Landing and Launching Device; also other special features of the device which heretofore have not been divulged to anyone.

COVERED BY FOREIGN AND DOMESTIC PATENTS

THE GIBBONS COMPANY

OFFICE: 343 COLUMBIA ST., BROOKLYN, N. Y., U. S. A.

BUILDERS SINCE 1869

OCTOBER 12, 1925

AVIATION

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CONTENTS

Editorials 480
Reliability Demonstrated by Ford Tour 481
Aeronautical Dinner to Pilots 486
Ford Sees New Air Epoch 486
A Reliable Reliability Tour Story 487
Some Technical Aspects of the Planes in the Ford Tour 491
Magni Air Resistance Brake 494
An Anti-Stall Safety Device 495
The Ireland Comet 497
The New Air Service Uniform ..... 498 - 499
The President's Air Board 501
The Mitchell Plan 502
The C.D. Air Express 503

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VOL. XIX OCTOBER 12, 1925 No. 15

The Ford Reliability Tour

EVENTS such as the Ford Reliability Tour have been often urged in these columns. They show the capability of aircraft as no other method can. It is not too much to say that this splendidly handled trip of commercial planes has done more to convince the public, living in the central states, that airplanes are safe, reliable and airworthy, than anything else in this respect could possibly do. And the results have been certainly most convincing. When it is recalled that, out of 17 commercial airplanes, which started from the Ford Airport on September 28, for a cross-country tour covering 1900 miles, 16 successfully completed the trip and returned to Detroit within reasonable margin of the expected time, the immediate possibilities of aerial touring become very apparent.

Accident Prevention

THERE is a certain phase in the development of any mechanical art in which close attention is paid to the all important subject of accident prevention, and aeronautics finds no exception to this rule, in fact, it may be said with some degree of certainty that in aeronautics there has been, more attention devoted to this side of the problem than has been the case in almost any other mechanical development, and necessarily so. The prevention of accidents due to structural failures in flight, though undoubtedly having presented many problems, must always be regarded as straight forward, but with airplane piloting the specialized art that it is, there has always been some difficulty in minimizing the chances of accidents due to errors on the part of the pilot.

Assuming careful piloting in general, the most common form of accident to be found may fairly well be stated as that caused by the inherent tendency to stall an airplane when attempting to execute a slow and cautious landing.

The most interesting and effective of all devices, which have been developed in the effort to minimize accidents of this category, is to be found in the recently demonstrated Savage-Bramson Anti-Stall Gear. In actuality, this consists simply in a device which corrects a tendency to approach the stalling incidence, and, let it be noted, not the stalling speed, for such varies according to the particular static load of the plane at the time and is therefore not constant even throughout a single flight. It would seem that in no way would it be possible for the pilot of a plane equipped with this apparatus, to mistake the signal of impending danger, for a force is applied by the device direct to the control column and in the correcting sense, thus temporarily taking the control off the pilot's hands until the airplane is again in normal equilibrium.

The mechanism, which is extremely simple and light has been tested out in flight and found to be foolproof and certain in its action. A number of safety devices have been invented from time to time, relating to the prevention of various possible causes of accident, but it would seem that in no previous case can there be found a device, which is positive in its action and entirely independent of any personal element. During a forced landing, when a pilot is endeavoring to reach a field without engine power at his disposal and is, consequently fully occupied in his thoughts and might miss a visual sign foretelling a stall, a device, which not only signals the danger but exerts a correcting force, is of the greatest importance to the future of flying. The Savage-Bramson Anti-Stall gear appears to fill this need.

Economical Full Scale Research

THE possibilities of putting light airplanes to a most valuable purpose in the carrying out of what may be termed "full flight model experiments" have been set forth through the columns of AVIATION within recent months and it is now most interesting to see what actually can be done in this connection. Entered in the Deutsche Rundflug, which concluded in Germany during the first week of June this year, were two planes which, though it is contended by the designers they were not experimental planes, do, however, demonstrate what can be done in the way of full scale experimentation under small and consequently economical conditions.

The small Junkers monoplane Type 29, which flew so well in the Round Germany flight, is, it will be recalled, fitted with wing flaps designed along the lines of a tandem airfoil principle. Some three years ago experiments were carried out at the N.P.L. in England and subsequently continued in Germany, on the aerodynamical advantages of a wing of this type and it was found that although the results seemed to offer promise under certain conditions, full scale experiments to establish the claims of the design were not altogether warranted. With the development of low powered flying, these restrictions should be removed and more experimental work under full scale conditions should be rendered possible. The Junkers plane is an example of this procedure and although information on the actual experimentation being carried out is not yet available, it is interesting to note that in the design of the fittings for the small auxiliary wing placed along the trailing edge of the main airfoil, arrangements have been made to enable the convenient alteration of the relative positions of the two wings, if the trailing flap may thus be termed.

In like manner, the new Mercedes Daimler Type L21 monoplane with twin engines mounted on the wings, each driving its individual tractor propeller, is a further example of what can be done in the way of diminutive full scale experimentation. This airplane, with its two 19 hp. engines, has flown well and in itself may prove a most useful light touring plane, but, at the same time, may turn out to be the forerunner of some large twin engined transport airplane of great carrying capacity, which will take the air with absolute confidence in the thoughts of the pilot and designer as to its performance and airworthiness, resultant upon the performance tests of its smaller prototype.

Reliability Demonstrated by Ford Tour

Planes Cover 1900 *Miles*

AS this account of the Ford Reliability has to be written before all the official elapsed time figures are available it will have to be supplemented by reference to the table which it is hoped will be received in time for publication in this or next week's issue.

The following telegram was received just before going to press: "Owing to incomplete returns from control cities final results will be delayed about a week. Unofficially from incomplete data available the following entrants have perfect scores.

The records of the 10 qualifying planes follow:

0—Travel Air, flown by E. K. Campbell, completed the course in 24.16 hr. with an average speed of 73.6 m.p.h.

2—Travl Air, flown by Francis Bowhan, carrying Mrs. Bowhan.

4—Travel Air, piloted by Walter W. Beech, completed the tour in 19.94 hr. with an average speed of 89 m.p.h.

10—Waco, flown by Lloyd Yost, completed the tour in 23.31 hr. with an average of 75.2 m.p.h.

16—Swallow, flown by Earl Rowland, completed the trip in 22.78 hr. with an average of 78 m.p.h.

20—Fokker 3F7, flown by Anthony H. G. Fokker and E. P. Lott, completed the course in 18.04 hr. with an average speed of 98.5 m.p.h.

22—Curtiss Carrier Pigeon, piloted by C. S. Jones, had an elapsed time of 18.08 hr. with an average speed of 98.4 m.p.h.

24—Martin, flown by Cy Caldwell, completed the tour in 21.21 hr. with an average of 83.7 m.p.h.

26—Martin, flown by L. B. Richardson, completed the flight in 20.42 hr. with an average speed of 85 m.p.h.

30—Ford, piloted by Eddie Hamilton, flew the course in 17.53 hr. with an average of 101.05 m.p.h.

36—Yackey Sport, flown by Walter J. Adams, finished the tour in 20.97 hr. with an average speed of 85 m.p.h.

The arrival of fifteen of the seventeen starters on schedule at the Ford Airport on Sunday afternoon, Oct. 4., can be properly noted as another marker in the history of aviation. Only one plane was damaged seriously enough to prevent its completing the trip while another was forced by the thunderstorm that nearly broke up the tour at the last moment, to land a few miles short of Detroit.

The weather was not kind to the tourists. They started from a muddy field and the schedule for the last three days was disarranged owing to cloudbursts, fog, rain and lightning. Instead of completing the trip to Columbus on Saturday, the planes had to stay in Indianapolis on account of poor visibility. According to the rules of the race, a stop, of this kind caused a delay of a day so that the next leg on Saturday was only from Indianapolis to Columbus.

The worst part of the trip was during the last half hour before reaching Dearborn. A downpour of rain with a lightning storm made the visibility so poor and the air so bumpy that all of the fifteen planes had a very difficult time in keeping on the course which skirted the shore of Lake Erie.

The order in which the participants finished at the Ford Airport is not an indication of their relative time as there was a difference of thirty-six minutes in the starting time. As an illustration, while the Fokker 3F7 landed a few minutes ahead of the Ford Transport, the latter left ten minutes after its rival. In the same way the other planes were often misjudged by the order in which they arrived. Another fact that was not generally considered was the difference in horsepower ranging from 600 down to 90. Eight of the competing seventeen planes had the old reliable Curtiss OX5. The total load carried compensated in a measure for this wide difference in engine power but until all the elasped times and the speeds are available the final conclusions as to performance cannot be given.

A Wet Finish

In spite of the downpour of rain, thousands of automobiles came to the Ford Airport and gave the pilots of the planes a hearty welcome. The field was covered with mud and water and after landing the heavier machines plowed through the field hub deep in the soft surface throwing up brown spray like a motor boat. The test of these commercial types of planes was sufficient to convince the most skeptical person as to their weather capabilities.

On landing, after the Fokker and its crew were given a hospitable welcome, Eddie Hamilton, pilot of the Ford entry, was carried on the shoulders of his admirers to receive the congratulations of Henry Ford and Edsel B. Ford. His elapsed time was the lowest of any made on the trip.

As to the winner of the Tour, it should be remembered that this year there was no contest for leadership. Reliability was the quality sought and all the participants finishing on schedule are considered winners and will have their names engraved on the trophy. Next year, a plan will be worked out in which different factors will enter into the formula for determining the winning plane.

One of the planes that was inspected after arrival with the greatest curiosity was the Carrier Pigeon that Casey Jones repaired at Omaha. What Casey called an "outboard strut" had been added to the left wing after the plane had crashed

FORD TOUR ENTRANTS

Plane No.	*Name of Pilot*	*Name of Plane*	*Name of Entrant*	*Name of Motor*	*Horse Power*	*Motor Displacement cu. in.*	*Total Load*	*Min Pay Load*	*No. Passengers*
0	E. K. Campbell	Travel Air A	Travel Air	Curtiss OXX6	100	567	335	286.5	2
2	Chick Bowhan	Travel Air B6	Do	Curtiss OX5	90	502	315.5	251	2
4	Walter Beech	Travel Air B6	Do	Curtiss OXX6	100	567	286.5	286.5	1
6	Fred Melchoir	Junkers Co. F13L	Junkers Co.	BMW	185	1165	881	583	5
8	Ed. G. Knapp	Waco	Advance Aircraft Co.	Curtiss OX5	90	502	261	251	1
10	L. O. Yost	Waco	Do	Curtiss OX5	90	502	255	251	0
14	John Stauffer	Swallow 1925	Swallow Airplane Co.	Curtiss OX5	90	502	257	251	1
16	Earl Rauland	Swallow 1926	Do	Curtiss OX5	90	502	255	251	1
20	P. Lott	Fokker 3F7	Fokker	BJ4 Wright	600	2361	1301	1181	8
22	Casey Jones	Curtiss Carrier Pigeon	Curtiss A.P.M. Co.	Liberty 12	400	1649	831	824.5	2
24	Cy Caldwell	Martin Commercial	Glenn L. Martin Co.	Wright E4	190	720	383	360	1
26	L. B. Richardson	Martin Commercial	Do	Wright E4	190	720	373	360	1
28	H. C. Mummert	Mercury Jr.	Aerial Service Corp.	Curtiss C6A	167	573	453	286.5	2
30	E. C. Hamilton	Ford	Ford Motor Car Co.	Liberty 12	400	1649	826	824.5	1
32	Hy. C. Etten	Laird Special	E. M. Laird Co.	Curtiss C6	167	573	290	286.2	1
34	E. A. Gaff	Laird Swallow	Swallow Co.	Curtiss OX5	90	502	258	251	1
36	W. J. Addams	Yackey	Yackey Co.	Curtiss OX5	90	502	254	251	1

into a motorcycle which was left standing on the field at Omaha. This additional strut was a piece of ordinary yard pile attached to the upper end of the regular strut and running diagonally to the wing tip. A gas tank used in a DH had been installed; the broken wing repaired with ordinary lumber; a new gas line system devised; a Reed metal propeller borrowed from the Air Mail and made for a DH attached; and Casey with this nondescript patched up plane finished the tour on schedule time. Nothing finer in the form of quick repairs has ever been shown in any contest.

Engines Perform Excellently

The engine performance on the trip was also noteworthy. The engines that were watched, particularly were the five Wrights, two E4's in the Martin Commercial planes and three Whirlwinds in the Fokker. It is estimated that these planes flew jointly from their starting points 13,000 mi. without trouble or replacement. For three years these engines have been used in Martin planes and this last performance is an excellent testimony as to their reliability. The reliability of the Curtiss and Liberty engines used by these commercial planes are so well known that their performances were taken as a matter of course.

The successful outcome of the first Ford Reliability Tour was due largely of course to the generous provisions made for the accommodation and entertainment of the entrants by Henry Ford and Edsel B. Ford, the donors of the Trophy. The officials that they secured to handle the meet were not only experienced but appeared to feel that no effort was too great to make the Tour a success.

Officials Efficient

Wm. A. Mara of the Detroit Board of Commerce was in general charge of arrangements both at Detroit and in the cooperating cities. He flew to each city on a pathfinding trip and made sure that every detail of the tour would be carried out according to his carefully prepared plan. Major R. W. Schroeder was in charge of the start and finish of the tour as well as the minor events that occurred during the week. "Shorty" lived up to his reputation and beamed on the difficulties with his engaging good nature. Alfred Verville acted as referee at Dearborn while Capt. Ray Collins, flying in a DH accompanied the tourists and refereed at each stopping place. Louis Meister and Stanley Knauss officiated at the microphone. Harry N. Knepper was timer.

The Judges were: Senator James Cousins, Congressman John Sosnoski, Congressman Clarence McLeod, Mayor John Smith, Sid A. Erwin, Carl Squires, James O'Neal,. Edsel Ford assisted by Reed Chambers were the chief starters and Floyd E. Evans checked the departure and arrival of the planes.

During the week there were exhibitions daily of dead-stick landings, pony express races, apron string contests, jumping balloon exhibitions, balloon chasing, and other usual contests. At night there were exhibitions by planes from Selfridge Field. The prizes for these contests amounted to $1500.

While Cy Caldwell has written a description of each day's trip it may be of interest to follow the tourists day by day as they journey from city to city.

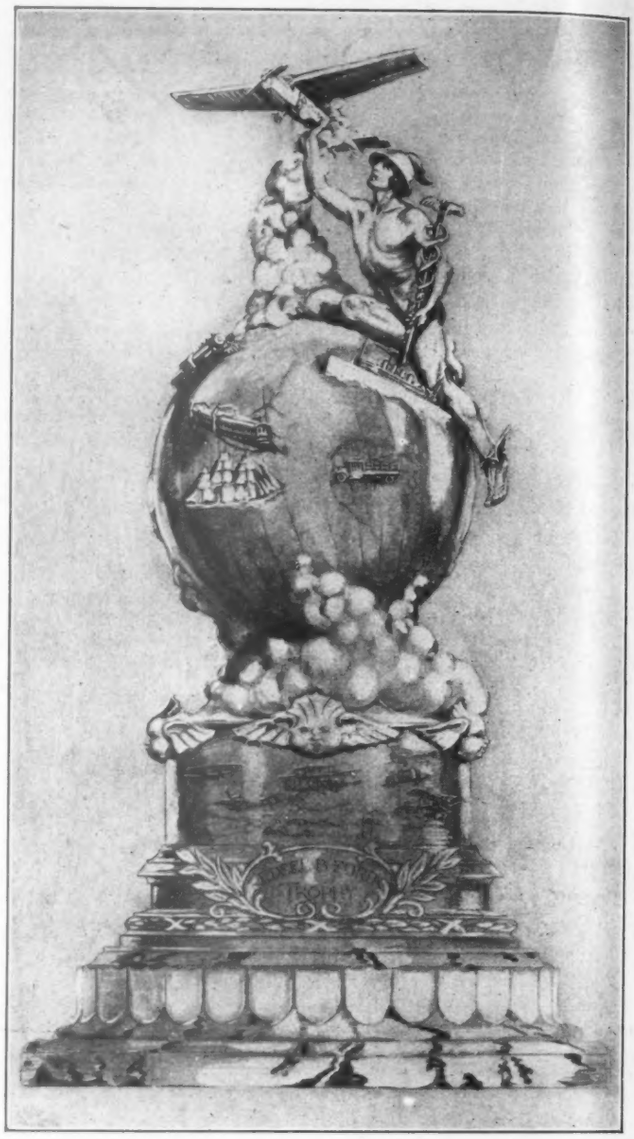
The Tour Day by Day

The schedule for the first day called on all the 17 fliers to arrive at Ft. Wayne, Ind., an hour and 50 min. after hopping off at Detroit, and to be prepared to take the air again promptly 3 hr 10 min. later, arriving at the Air Mail Field at Chicago not later than 4 p. m., Central Standard Time.

The only woman to make the tour was Mrs. Charlotte Bowhan, wife of Francis Bowhan, pilot of No. 2. She flies constantly with her husband, an Osage Indian, who took up aviation about five years ago.

Chicago officials aviation experts and the newspapers joined in giving the passengers and pilots of the 17 planes a welcome.

Chicago's Chamber of Commerce gave a reception to the flying visitors. Three hundred members of the commercial organization attended. Major Reed Landis, chairman of the Chamber of Commerce committee on aviation, and an American "Ace" in the war, presided and was the principal speaker.



The Edsel B. Ford Trophy

Triumph of commercial aviation over land and sea transportation in the race to conquer distance is symbolized in the Edsel B. Ford trophy, upon which the names of the planes, which finished the Commercial Airplane Reliability Tour at the Ford Airport Sunday afternoon, October 4, will be inscribed.

The trophy, approximately thirty-six inches in height, is fashioned from sterling silver on a marble base. Around the base is a row of shields for the names of the successful planes.

A commercial air liner is the surmounting figure, being launched in the clouds by the god of commerce. Below on the earth, are steam and electric railway trains, sailing and steam ships and a motor truck. The thought is presented that while the ship is dependent upon the sea, the train upon its tracks and the truck upon roads for operation, the airplane soars over them all, the unbounded space of the sky, its highway.

Supporting the globe, is a bank of clouds over the heads of the four winds. In bas-relief around the silver column is shown the development of aviation from the earliest attempts to fly on up to the ships which finally mastered the air.

The trophy was designed and produced by the Gorenflo Company of Detroit in conjunction with The Gorham Company, silversmiths, New York.

Several of Chicago's citizens, all of them intensely interested in aviation, were given a trial ride in the Fokker by its designer.

Philip Wrigley, son of the gum manufacturer; Lester Armour, Paul Henderson, formerly Assistant Postmaster-General in charge of the Air Mail and now head of the National Air Transport Co., and Warren Taylor, a local banker, made the trip.

The Ford plane piloted by Eddie Hamilton, and a twin of those in daily Ford service between Detroit and Chicago, actually made the best average time on the hop. His speed averaged 98.2 m.p.h. Fokker did 96.2 and "Casey" Jones averaged 96 mi. flat. Hamilton probably would have won the race with the Ford craft except for the fact that he was one of the last to take off from Ft. Wayne.

Tourists Leave Chicago

On Sept. 29 the tourists leaving Chicago on time, each plane made a good progress to Moline, Ill., where a stop of a little more than an hour was made. The first plane left there at noon for Des Moines, Ia. The small field prevented landing there of eight of the 17 planes, the Ford, Fokker, Mercury, Jr., two Travel Airs and two Martins. They proceeded to Omaha, making the flight in a little more than 4 hr. each.

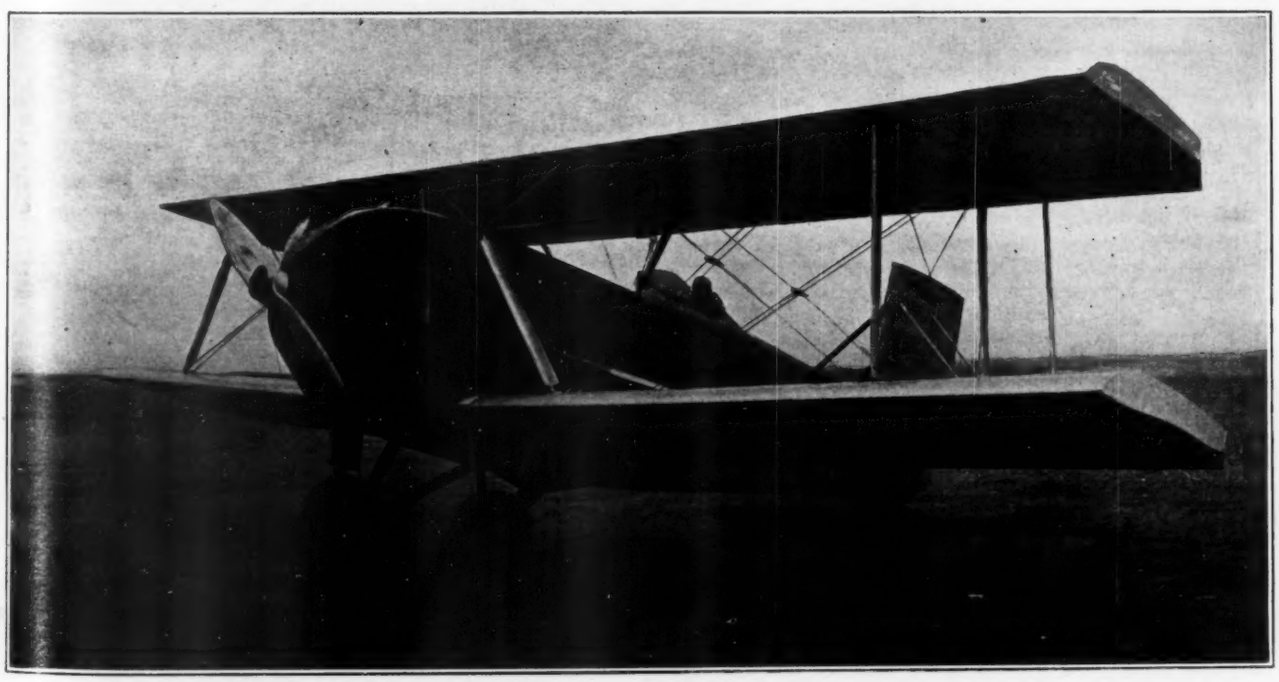
West of Moline, some of the planes were at home. The Swallows and Travel Airs, products of factories at Wichita, Kan., are known all over the middle west and most of the pilots had visited the field established as control points on the tour.

But familiarity with the route made no difference apparently in the performance of the planes. Those pilots who had never flown in the west and even those who had never flown in this country unerringly followed the aerial highway and landed within a few minutes of the others at the proper fields.

At Omaha occurred the accident to Casey Jones Carrier Pigeon. Frank Bogart of the *Detroit Times* who was a passenger described the crash as follows:

"The accident was of a sort that could not be foreseen, but which might have been avoided had field officials understood the need for strict ground rules.

Edsel B. Ford starting the planes on the Tour



A Curtiss "Carrier Pigeon" similar to the plane flown by "Casey" Jones in the Tour

"Neither Jones nor his two passengers were injured, but the propeller, the left wing spar, the radiator and the gas tank were damaged severely.

"The accident came about in this way:

"Jones was approaching the 100-ft. circle which marked the goal, and in which stood timers and other officials. Suddenly across his path loomed the Junker plane which had immediately preceded him. Its pilot, Frederic Melchior, had misunderstood the directions of local officials on how to reach his parking place and was taxiing up the field on the wrong side. Jones had to swerve to avoid him and got within three feet of the ground. Jones was looking the other way to keep out of the Junker's path. He did not know what he had hit until he rolled over a motorcycle kept on the field by one of the local officials.

"The Junkers' crew explained that they were in the wrong path because the Fokker, flown on a demonstration flight, had crowded them over.

severity of the storms, but all were successful in again taking off and reaching their destination.

At St. Joseph and Kansas City, "The Center of Aviation," according to the city officials in both of these cities, the most enthusiasm for commercial aviation on the trip so far was shown.

More than 10,000 persons greeted the tourists when they landed at Rosenerans Field at St. Joseph, while 500, including city officials, business men and civic organizations, entertained the flight personnel at a noon banquet.

Kansas City to St. Louis

At Kansas City the fleet landed in the midst of a rain storm, but several thousand persons braved the wet to greet the fliers. A banquet was tendered the air tourists by the Chamber of Commerce, 1,200 persons were guests.

Casey Jones, after working all of the night before on his wrecked Curtiss Carrier Pigeon, patched his ship up with

International Newsreel Photo

The 3-engined Fokker F7A with Wright 200 hp. "Whirlwinds"

"Fokker had reached Omaha more than an hour ahead of the other ships because the field at Des Moines was too small for him to land in. He began to fly passengers and did not take care to end his flight before the other arriving planes got over the field.

"Touring Referee Ray B. Collins of Detroit protested Fokker's indifference to rulings as to safety in his flights and precautions against interfering with other ships when he wired the contest committee at Detroit, after the exhibition the foreigner gave on arrival in Chicago. He flew six feet over the heads of the crowd there and in the line of other ships, taking his hands off his controls. Exhibition flights in other cities are to be barred henceforth."

Edward G. Hamilton's time in the Ford plane was: Chicago to Moline 1:21:07, Moline to Omaha 2:57:51—total 4:18:58.

The Fokker's time was 1:20:52 plus 3:00:45, for a total of 4:21:37.

Neither stopped at Des Moines, an advantage for them over Jones, who did stop. Still his time on the three legs was 1:22:31, 1:32:24, and 1:24:40, for a total of 4:19:25. This gave him second place for the trip.

Omaha to St. Joseph

On the next day severe storms between Omaha and St. Joseph and between St. Joseph and Kansas City took their toll of the planes. One, a Waco, piloted by E. G. Knapp was wrecked in taking off after a landing made in a small field. Six other planes were forced to the ground by the

some spare parts furnished him by the air mail organization at Omaha and brought the plane through.

On Oct. 1, the trip from Kansas City to St. Louis was made against head winds and beneath low, sullen clouds. They landed at the Lambert-St. Louis flying field. Two of them had forced landings due to engine trouble, and the Junkers got off to a late start from Kansas City because of the same thing.

Eddie Hamilton brought the Stout monoplane over the day's course—235 mi.—in less time than any of his competitors, crossing the finish line here 2 hr. 16 min. and 41 sec. after he took the air at Kansas City. His average speed was 103.1 m.p.h.

Times at St. Louis

The Mercury Jr., piloted by H. C. Mummert of Hammondsport, N. Y., finished second with an elapsed time of 2 hr. 18 min. and 30 sec. Fokker's tri-motored passenger-carrying monoplane made third best time at 2 hr. 26 min. and 35 sec., while Casey Jones Carrier Pigeon took 2 hr. 27 min. and 10 sec.

The planes had completed 1,125 air-line miles of the tour, and an appreciably greater actual flying distance due to the fact that the course has gone out of straight line distances at certain points along the route.

On Thursday, Oct. 2, the fliers encountered dense fog at St. Louis and were delayed for three hours which necessitated an overnight stop at Indianapolis instead of Columbus. Two planes had forced landings but arrived later.

At Terre Haute, in response to a request from newspapers and civic bodies there, all the entrants dived at the field, and greeted the crowd that was gathered. From the air it seemed several thousand people had gathered to witness the passage of the planes. The first to pass the field was the Junkers plane, next the Fokker and next the Travel Air No. 4.

Overnight at Indianapolis

Another thrilling finish was accorded spectators at Indianapolis, when the Junker, Fokker and Travel Air No. 4 roared across the finish circle a few seconds apart. The Junker and Fokker had been fighting for a lead since they left Terre Haute with neither ship running at full throttle. Walter Beach in the Travel Air climbed above the clouds at about 5,000 ft. and kept a little to the rear of the two monoplanes. As the three passed the Indianapolis speedway, Beach started a long dive for the field, passing both monoplanes.

The best time between the stops was made by Eddie Hamilton in the Stout metal air transport, the timers catching him at 2 hr. 25 min. 19 sec. The Fokker was next with 2 hr. 25 min. 36 sec. Casey Jones and the Mercury Jr., arrived in exactly the same elapsed time, 2 hr. 27 min. 14 sec.

The next leg from Indianapolis to Columbus was a short one and made in fog and rain.

On Sunday, the tourists took off from Columbus, landed at Cleveland and reached Detroit after passing through the worst storm of the trip.

The order of the arrival at the finish was as follows: Fokker 3F7; Ford Air Transport; Junker F13L; Curtiss Carrier Pigeon; Laird Special; Waco (the first OX5 entrant to complete the trip); Travel Air B6; Yackey; Travel Air B6; Swallow, 1926; Travel Air B6; Swallow, 1925; Waco; Martin Commercial; Martin Commercial.

Detroit News Balloon Race

On Saturday, Oct. 3, the balloon race sponsored by the *Detroit News* was started.

More than 20,000 people witnessed the start. The entire field was surrounded by automobiles, and traffic was tied up for an hour when the crowd began its rush back to Detroit.

Five bags were entered in the contest. The first one released was the skylark, built and piloted by William C. Naylor. The surface air was motionless and the gray bag ascended almost vertically to a height of 200 ft., when it was caught in a slow-moving current of air and drifted to the south, slowly rising.

At intervals of five minutes it was followed by the Army Air Service entry S1, piloted by Lieut. Max Moyer; the Detroit Flying club entry, piloted by Charles D. Williams, Jr.; the Goodyear IV., piloted by J. A. Boettner and W. W. Morton; and the Highball II, piloted by Svend A. U. Rassmussen.

Henry Ford arrived at the field at 3:30 and remained until the balloons took off, shaking hands with each pilot before he climbed into the cockpit.

The officials in charge of the balloon race were: Chief Official in Charge, Ralph Upson; Field Manager, H. V. Thadden; Referee, W. T. Van Orman, Akron, Ohio; Timer, L. M. Woolson; Judges, Harold H. Emmons, H. S. Hulbert, Akron, W. C. Young, Akron.

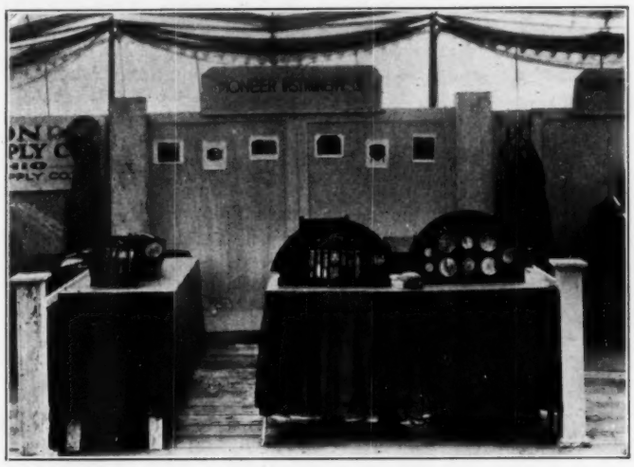
The race was won by Svend A. U. Rasmussen, flying the Highball II, and he secures a year's possesion of The Detroit News ballooning trophy when he landed at 12:25 p. m. on Sunday eight miles southeast of Bradford, Pa., a distance of 225 mi. from the Ford airport here. The others landed safely, although the Skylark, piloted by W. C. Naylor, Detroit, came down in Lake Erie. Naylor and Kenneth Warren, who accompanied him being rescued by a passing steamship.

First Aeronautical Exposition

A large tent near the Stout factory housed the exhibits of aircraft, accessories and supplies. At one end a space was reserved for the exhibition of moving pictures. In the center space, three airplanes were exhibited by the Waco Airplane Co., of Troy, Ohio, the Travel Air and The Swallow Airplane Co., both of Wichita, Kan. The Wright Aeronautical Corp. and the Standard Oil Co. of Indiana, also occupied space in the center section.

Around the sides of the tent, booths had been built and the exhibits, while confined to small spaces, made an impressive showing.

The arrangements for the aeronautical exposition were in charge of W. L. Dewald of the Ford Air Service.



A typical exhibit at the Aeronautical Exposition

EXHIBITORS IN ANNUAL AERONAUTICAL EXPOSITION

1	Hamilton Aero Mfg. Co.	Propellers & Metal Floats-finish propeller
2	Edward G. Hamilton	Aerial Photos
3	Cincinnati Lathe & Tool Co.	Engine Lathe
4	Aircraft Development Corp.	Lighter than air mfgs.
5	Ireland & Matthews Mfg. Co.	Autoplugs Magnetic Pump
6	Swallow Airplane Mfg. Co.	Airplanes
7	Walden Worcester Inc	Socket Wrenches
8	E. B. Meyrowitz Inc.	Luxor Aviation Goggle
9	Strauss & Buegeleesen	Goggles Resistal for Aviators
10	Accessory Forgings Co.	Parachutes Drop Parts
11	Haskelite Mfg. Co.	Haskelite Plywood
12	Curtiss Aeroplane & Motor Co.	Motor Propeller & Pictures
13	Norma Horrman Bearings Corp.	Precision Ball, Roller & thrust br.
14	Splittdorf Electrical Co.	Aircraft Magnetos
15	Mosler Metal Products Corp.	Aviation Spark Plugs
16	Stewart Harsthorn Co.	Streamline wires & fittings
17	Electric Storage Battery Co.	Airplane storage batteries
18	Vacuum Oil Co.	Oil
19	Lakeside Lubricants	Aviation Oil
20	Champion Spark Plug Co.	Spark Plugs
21	Eclips Machine Co.	Aviation starting equipment
22	Bausch Mch. Co.	Duralinin
23	U. S. Cartridge Co.	Radiators
24	American Gas Accumulator Co.	Lights
25	Standard Oil Co.	Oil
26	S.K.F.	Ball Bearings
27	Navigator Instrument Co.	Altimeters
28	B.B.T. Corp.	Flashing Beacon
29	General Electric Co.	Night Flying
30	Fairchild Airplane	Model
31	MacWhyte Co.	Streamline Wire
32	Stromberg	Carburetors
33	National Steel Products Co.	
34	Elgin National Watch Co.	Tachs & watches
35	Waco Aeroplane	Exhibit plane
36	Johnson Airplane	Clothes
37	Berry Bros.	Varnishes
38	Pioneer Instrument	Instruments
39	Eberhart Steel Products	Aircraft accessories
40	Wyman Gordon Co.	Crankshafts
41	Detroit Flying Club	Mosquito ship
42	Wright Aeronautical Corp.	Whirlwind Motor
43	Travel Air	
44	National Steel Products	Airplane Details
45	Mechanical Metal Crafts	Airplane Tank

In addition the following companies were represented: Aerial Surveys, Inc., Cleveland and Detroit; Kohler Co., Kohler, Wis., A.G.A. Co., Elizabeth, N. J.; E. B. Meyrowitz, N. Y.; B. F. Goodrich; W. H. Fauber, Brooklyn; Oxweld Acetylene Co.; Kalec and Foster, Detroit; Zenith Detroit Corp.; A. G. Spaulding and Bros., New York; Charles A. Strelinger Co.; G. Elias and Bros., Buffalo; Johnson and Johnson, New Brunswick, N. J.; Junkers Corp., New York City; Vellumoid Co., Boston, Mass.; National Watch Co.

Rain, the only unfortunate circumstance of the week, not only prevented large crowds from visiting the exhibition but made access to the tent difficult. In spite of this handicap thousands of interested visitors had an opportunity of seeing a representative Exhibit of American aeronautical products.

Aeronautical Dinner to Pilots

After the ships had landed they were entertained at a banquet given in the Airport hangar presided over by Harold H. Emmons. All of the men responsible for and participating in the tour were introduced to the 500 people present.

"The tour makes a landmark in the progress of our country and as such should be dedicated to our country," Mr. Emmons said, and he asked that everyone join in singing "America."

Emmons said in part:

"This is a historical event, the successful termination of the Reliability tour, because it has demonstrated that navigation of the air is as easy as navigation on land or sea. As a result of this tour, we will get good airplanes as well as better airports adequately lighted for night flying. The great thing we have demonstrated is that we have airplanes that we can depend on to get safely from one place to another. While the backbone of anything is its commercial application and use, the development of commercial aviation will be of great benefit in event we are drawn into war. And this fact will eventually percolate into the heads of persons who should have realized it long ago."

Following the dinner, William B. Mayo, chief engineer of the Ford Motor company, issued a statement in which he said:

"The flight has been successful beyond our highest hopes and argues well for the future of commercial aviation. It is remarkable that the machines came through the storm of Sunday without mishap. The searchlights enabled them to pick out the landing field where otherwise some of them undoubtedly would have lost their bearings. All airports should be adequately lighted to facilitate night flying. Please extend our thanks to the manufacturers and pilots who have cooperated in making the tour a success."

Sunday's welcome marked the end of a gruelling test.

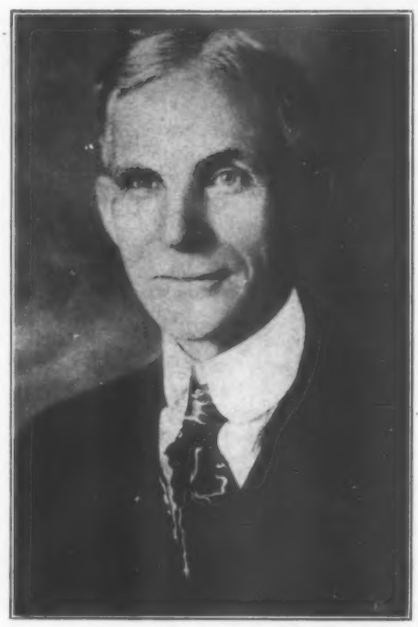
Ford Sees New Air Epoch

"The fact that so many airplanes entered in the first commercial airplane reliability tour returned successfully after having flown more than 1,900 mi. in a week proves that airplane transportation not only is safe, but that it is reliable," Henry Ford declared after all but two of the ships entered in the tour for the Edsel Ford trophy landed at the Ford Airport.

"We have been experimenting with an 8-cylinder air-cooled motor of 200 hp. for some time," he said, "and tests prove it to be highly satisfactory. It is a double-V type, or like two X's, one back of the other. It has a double crank-shaft and vibration is practically eliminated.

"I'm a greenhorn at this aviation business, but I can see that it is going to be a great industry.

"It's bigger in possibilities than anything else in the world; too big to be a one-man patent affair; too big to be any one man's contribution to the science.



Henry Ford

Patents and Parasites

"Patents are silly things when they are used to hinder any industry. No man has a right to perfect a patent for profit only. That produces parasites; men who are willing to lie back on their oars and do nothing. If any reward is due a man whose brain has produced something new and good, he should get it through profits from the manufacture and sale of the thing.

"We take patents on our own developments and discoveries only to prevent others from freezing us out when they may have a chance to make the same discoveries. We use patents to prevent a shut-out game. We believe in the gospel of use.

"Besides, a patent is very seldom wonderful. There is nothing new under the sun. We thought we had something fine when we invented the little gear just under the steering gear to make the steering of our cars easier. Then we found that a piano tuner had found the same principle in 1826 and used it to tune pianos—identically the same gear arrangement.

"We'll put all the people into the air whenever they want to fly. What I am doing is helping to get ready for the flying generation when it comes. This new art belongs to the younger generation, here in my own family, it is Edsel who is mainly responsible for what we are doing."

"What do you think of the manufacture of an airship larger than the Shenandoah by the navy?" he was asked.

"They ought to do it," he said. "But it should have wings too. The wing should never be alone, nor the gas bag alone. Such a ship must be strong to resist storms and have power enough to drive it through the storms. The helicoptic principle should be used also, together with the wings to control its ascent and descent.

"I see no reason why the trip to the old countries should not be made in a day or two on such ships. Put power enough into them to make them stronger than the elements. Man must conquer these elements, and he will.

Airplanes as Peace Factor

"Of course, my biggest interest in the airplane is that it will be a destroyer of war. I think that will be its biggest service.

"The airplane is going to enlarge the use of the automobile. The motor car has mixed the people up so thoroughly that you could not fool any American about any part of the country, but they still can be fooled about other parts of the world. Well, the airplane will stop that. In a motor car you can go wherever land exists; in an airplane you can go wherever man can breathe. When the plane becomes general, it will put power into the people's hands just as the motor car has done."

"The airplane will make short work of big navies, I think. Force and money are still the great delusions. Take Europe with her navies as the symbol of force and her money as the symbol of force. Neither keeps her out of trouble. The money idea is strong enough here in America, but there is no comparison with what it is in Europe. There they think money has a magic power. They have been educated in the idea for centuries. They have been taught to look up to money. Well, they're doing it now, and they are finding that money cannot start anything or save anything.

"The airplane is going to destroy the delusion of force, and that will bring peace."

A Reliable Reliability Tour Story

By "CY" CALDWELL

Sunday, September 27

"LAKE FORD, MICHIGAN." This beautiful lake, near the village of Dearborn, covers land formerly known as Ford Airport, over which the Stout all-metals used to roll for miles before lunging into the air. On the day the Ford Reliability Tour started the land was covered by the waters of a recent cloudburst, in which infant fish are growing rapidly to maturity.

This made it nice and homelike for the Loening amphibian but rather damp going for two Martin Commercial planes piloted by Lieut. L. B. Richardson and this correspondent. We alighted and waited for a lake pilot to board us and pilot us to the docks, formerly concrete roadways. Some spoke of "fording" but puns are not our specialty. We nearly went aground when we struck shoal water near the hangars, but floated off and beached the ships. I know how the boys felt on the PN9. It sure was good to hit the shore.

No Smoking

Now, the first thing a pilot does when he steps from a plane is to light his pipe or a cigarette. And at Lake Ford, the next thing he does is to put it out again, for "SMOKING IS NOT PERMITTED." They're afraid you'll set the lake afire. I know, for I lit my pipe. Instantly an official said, "You mustn't smoke here,—Mr. Ford doesn't like it." Well, what could I do? I couldn't antagonize Mr. Ford. I was there trying to get something out of him. I know it's never been done yet, but I was there to try it. So I stopped smoking. I met W. B. Mayo, Ford's Chief Engineer, and said to him, "They don't let you smoke either, do they?" He admitted they didn't, and looked rather sheepish too. He may not want to smoke, for all I know. But he can't if he wants to. Therefore I am certain he wants to smoke, if only because he isn't allowed to. Well, there you are. Here's a man in charge of thousands of other men who probably regard him with awe. But I don't. To me he is just a poor fellow whose boss won't let him smoke. Dear old Carrie Nation! How she would have loved the pure atmosphere of Lake Ford.

No. 4. The Travel Air Starting

Will some rich man send two gold medals to E. J. Mitchell and Major R. W. Schroeder. Among an army of men wearing official ribbons, these two stand out, with two or three Ford mechanics, as the only ones who would or could do anything practical to help pilots. The rest of them looked at us. Mr. Verville and a few more were busied in weighing, and their time was fully occupied. But 99 44/100% of that beribboned army merely looked on. Apparently that's what they were there for.

A kind stranger, without a yellow ribbon, brought me to Detroit, or I'd have been out there yet, fishing in the lake for my dinner. I'm glad that Detroit Aviation Society didn't give that man a ribbon or he never would have brought me in. I know the ribbon would have spoiled him and rendered him useless.

The Ford Trophy Tour started promptly at 10 a. m. when Edsel Ford dropped the flag on the first plane and watched it leap into the air like a flying fish from the still waters of the lake. Sixteen other planes followed at two minute intervals and strung out on the first leg to Fort Wayne. The world's first airplane reliability or otherwise tour had started. For list of planes and pilots who started see other accounts of the tour.

It was a beautiful day with fine visibility just the day to fly some place, or else sit down and loaf. And as I flew along,—for I was in the parade,—I thought how nice it would be to loaf beside one of those little lakes or streams we passed. So peaceful, you know. No roaring motor coughing carbon monoxide gas in your face. No wondering if you're following the right road.

On this flight to Fort Wayne I encountered a phenomenon that gave me quite a surprise. Flying at 800 ft. I smelled the unmistakable aroma of a skunk. I am not joking. This is no subject to joke about, and I'm the last man in the world to take a skunk lightly. I know the subtle perfume of this interesting animal will travel for miles on the wind—and why not upward also? I was flying astern of a well known plane—but no, it was a skunk all right.

Fort Wayne First Stop

At Fort Wayne, the N.A.A. Chapter provided an excellent lunch, which we shared with thousands of flies. Another mystery of nature, for no one knew how the flies heard of the tour. Lunch was served in a tent in the open field. There wasn't a fly in sight when the tent was put up. But the minute the lunch was spread myriads of flies appeared and fell upon it with hoarse growls. I don't know how they knew we were coming but the publicity of some of the outfits may account for it.

The Fort Wayne control handled details of checking, servicing and starting the planes very efficiently, and at 2 p. m. we were off for Chicago, to which the Pennsylvania R. R. with its usual thoughtfulness, had laid a double track so we could find the way. It is interesting to wonder how many pilots would get anywhere without the good old rails. They're real friends. Let him who will tour the open country. I'll follow the tracks, except through tunnels.

Warm Welcome at Chicago

When we landed on the wide and dry cinder runway of the Air Mail Field at Chicago, after two very moist fields, we felt much as the children of Israel must have felt when they reached dry land after crossing the Red Sea. I felt rather nervous about staying in Chicago over night, but I think an armistice must have been declared. I didn't hear a single revolver shot, and I feel now that I could have slept right in bed quite safely, instead of lying under it with the mattress on top to stop the bullets.

Chicago gave the tourists a warm welcome, provided rooms and meals, looked after us like children, and sent us away with a warm feeling in our hearts. They're a fine crowd, those Chicago boys. No wonder Tony Yackey likes to live there. Tony helped more than one of us with supplies and service and refused to accept payment for anything. The Ford Co. placed Lincoln cars at our disposal, drove us about in them and effectually spoiled us for ever riding in their other, more humble, production.

The flight to Moline was pleasant and uneventful. All planes flew in less than schedule time. Rusty Campbell in a Travel Air was first to land at Moline, his home town, which

naturally delighted the home folks, who concluded he had the fastest plane in the outfit.

Lunch and flies were served in a hangar. This fly business has me guessing. I was in Moline two weeks ago and I'll swear there wasn't a fly on the field, and yet, when we sat down to lunch a million flies were there ahead of us.

Moline employed the most amazing starting system I have seen yet. Instead of being behind the planes, the crowd was in front as the starter took his stand and raised the flags, the crowd formed a narrow lane for 50 ft. in front of the plane. They stood 20 deep on each side of the lane, and as the plane moved forward at the drop of the flag they surged closer until the wings almost brushed them as the plane gathered speed. Then they rushed to form a 50 ft. lane in front of the next plane, and so on. They must have been members of some local Suicide Club.

Des Moines to Omaha

Air mail pilots on the New York to Cleveland Division would enjoy a vacation flying over Illinois and Iowa. At 1000 ft. there isn't a moment when a fairly good field isn't within gliding distance. It's restful flying country and invites air travel.

Des Moines, the next stop, was skipped by all planes having gas capacity to go on to Omaha, because the field is small for large and heavily loaded planes. Those who wished to go on without landing flew low over the circle for the timers to check them, then continued to Omaha.

At Omaha an unfortunate accident disabled the Curtiss Carrier Pigeon piloted by "Casey" Jones. "Casey" had landed and had almost stopped when he noticed the Junker landing close on his left. In swerving to the right to avoid it, he struck a motor cycle and side car left unoccupied near the judges' circle. The Pigeon leaned over on its beak as though pecking corn, stuck one wing in the earth and gaily waved its tail in the air.

"Casey," however was able to repair the damaged wing tip of his plane and succeeded in procuring a propeller which proved suitable and was thereby able to continue in the Tour.

The Omaha Chamber of Commerce provided accommodation and a banquet for the tourists. There were several speeches but I don't complain. I have made it a rule to let any man make a speech to me if he has first given me a dinner. Without the dinner I possibly would refuse to listen to him. There are limits to my good nature.

Casey's Batting Average 1000

Wednesday morning all the tourists, except "Casey" Jones and L. D. Gifford in the Curtiss Carrier Pigeon, took off for St. Joseph, the aviation center of the United States, as the citizens of St. Joseph admit, when questioned. As we had seen the "Pathetic Pigeon" only the night before standing on its head, we were amazed and delighted to learn that "Casey" and Gifford, by working all night and assisted by the Air Mail mechanic, would be able to repair damage and take off by noon. They were given a deferred start and arrived in St. Joseph in ample time to leave for Kansas City on schedule.

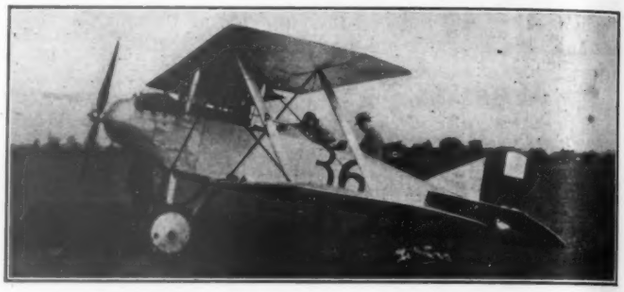
The St. Joseph Chapter N.A.A. entertained the tourists with an excellent luncheon including chicken. We had chicken in Chicago, Ft. Wayne, Omaha, St. Joseph and Kansas City. It seems to be an obsession of these good people to feed us on chicken. There is other food of course, but the piéce de resistance of the meal is chicken. *Resistance* must be taken in the French, not the American, since we haven't visited St. Louis, Indianapolis, Columbus and Cleveland yet, but I know that they'll have chicken. It's nice of course, but I'm getting to the stage where I'm wondering if beef has been withdrawn from the market, and stockmen are keeping their cattle as pets. I passed a herd on the road today and actually shuddered.

At St. Joseph I was called upon for a speech. I have listened to so many on this tour that I took fiendish pleasure in inflicting a speech on others. I can be pushed only so far and then I retaliate. And I can state here that I bored the other speakers quite as much as they had bored me!

Reluctantly, we left the St. Joseph Indians and flew to Kansas City, a place on the "Mizoorah" River, 50 miles south of St. Joseph. Here the kind hearted citizens forgave us for stopping at St. Joseph and entertained us royally. We learned with pleasure that Kansas City is also the center of aviation—which makes two centers. It's a bit confusing to visitors, but is quite satisfactory to the good folks of St. Joseph and Kansas City, They play a little game called "Center, center, Who's got the center."

Speeches and Speeches

Ely Knapp, piloting a Waco with Ted Abrams as passenger landed near Dearborn, Mo., in a small field. In taking off, Knapp had the misfortune to so manipulate his plane that it could be shipped conveniently in a small case without the trouble of taking it apart. Old man Gravity had disassembled it for him, a favor the old gentleman has conferred on many a pilot. But there's a bright side to every disaster—he won't have to listen to any more speeches on this tour.



The Yackey Sport flown by Walter J. Adams

Speaking of speeches, I've heard Anthony Fokker's speech four times. It's fine and is quite as entertaining as sitting through four showings of a movie. "Casey" Jones and I love every word of it and wouldn't miss it for anything. The thing that tickles us to death is the way Fokker has run away with Ford's publicity. In Kansas City the name of Ford was mentioned only once, and that was when someone told an old one about a Ford truck getting stuck in the mud. The Ford plane wasn't even mentioned. I don't think anyone in these cities knows that Ford has a plane. All we heard was Fokker and "The Unholy Three"—Wright J4s. The name of the tour has been changed, by the way, from Ford Reliability Tour, to Fokker Publicity Tour.

Ken Boedecker of the Wright Co. was searched by the Chief of Police at St. Joseph, who found a hotel spoon in his pocket. He declared his innocence, though no one believed him but me. I refuse to think ill of anyone, no matter how damaging the evidence may be against them. Now I'm certain he couldn't have intended to purloin that spoon—because I put it in his pocket myself and told the Chief to search him.

We had lots of fun in St. Joseph and Kansas City. Life isn't so bad when you can find something to laugh at and someone to laugh with.

Chief Bowhan's Luck

Chief Bowham, flying a Travel Air with Mrs. Bowham as passenger, landed between St. Joseph and Kansas City on account of bad weather, but continued after a short delay. The Chief is an Osage Indian. He's not a full Indian because his wife's along and he can't get out nights.

The government gave Bowhan's tribe some land for a reservation, so poor you couldn't raise anything but a thirst on it. The Chief discovered oil under it, much to the chagrin of the government, who had hoped he would starve to death out there. Now he's well off and buys Travel Air planes and flies them. This is a bitter joke on the government, who believes an Indian should walk when he wants to get anywhere.

On the run from Kansas City to St. Louis all the Tourists made good time except Henry C. Etten in the Laird C6 No. 32, which had motor trouble and landed near Columbia.

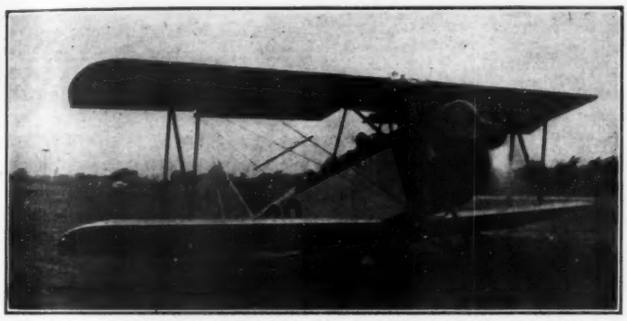
Chief Bowhan also landed with motor trouble, he says. This is the second time. What actually happened was that the Chief spotted a "Mizooruh" rabbit and went down and collected it. You can't keep a good Indian up when a good rabbit is on the ground.

St. Louis Hospitable

Harvey Mummert in the "Mercury Jr." starting 26 min. after the first plane from Kansas City, was first to land in St. Louis, beating the Fokker, which all through the tour had struggled madly to get in first. This was a blow to the Flying Dutchman. But that wasn't the worst of it. There was no banquet and the good old speech had to be turned off for the night, much to the sorrow of Walter Beach, who can't sleep without his nightly Fokker sandwich, as he calls it.

The flight was made at an altitude of 300 ft. the greater part of the way, through very foggy air. Not a bump in the sky, however, so the old reliables slid along like Leviathans on a placid sea.

All credit to the boys at the St. Louis Flying Club. Absolutely unassisted by the City, they supplied us with gas and oil and breakfast at their own expense, and wouldn't accept payment, though we urged it. I know "Casey" Jones won't believe I urged much. But I assure the world I am a liberal spender, when I'm travelling on Glenn L. Martin's expense account. The dear chap is broken hearted if I ever bring him back any expense money. I am careful never to hurt him by doing that.



The start of the Mercury, Jr., piloted by H. C. Mummert

To me, the most beautiful part of our St. Louis stay was the absence of speeches. Life was less burdensome. We were enabled to circulate about the city and admire the beautiful women for which St. Louis is famous.

This is the most affectionate city in the U. S. Everyone loves everybody else. The tops of the busses carry devoted couples who hug each other frankly under the soft radiance of the Mississippi moon. I don't know how they get that way—it must be the water or the fragrance of the Anheuser-Busch.

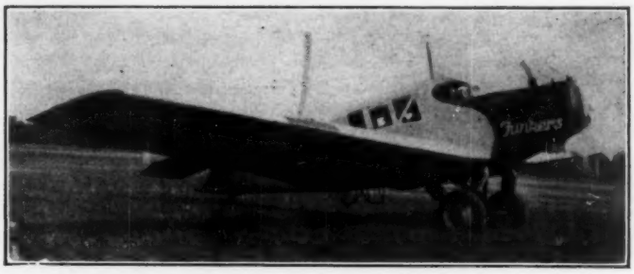
There are several outstanding individuals in the tour—outstanding in the manner I used to be in the Army when the sergeant would bawl "You there ! One pace forward so I can see what's the matter with you." I was an outstanding person many times.

Personals

The most outstanding of us is Doc Kincaid of the Wright Co., with Boedecker, the kleptomaniac, who urges the Unholy Three to the fore, before the Ford. It only takes those two and another mechanic and two pilots to get the plane through. E. P. Lott and Uncle Anthony pilot the craft between them. E. P. is son of the Howson Lott, and Uncle Anthony is the father of Aviation, according to his press agent. Ed Hamilton, the man who cruises in the Ford at 1475 revolutions, according to himself, has difficulty in explaining why the Liberty pours out black smoke at that speed. Mummert and Mead in the "Mercury, Jr." enjoy beating the Fokker, while the Junkers' crew are famous for beating nobody. But what they lack in speed they make up in efficiency. They carry five passengers, weighing 881 lb. and pilot and 273 lb. of baggage—a total of 1154 lb. towed along by a 185 hp. B.M.W.

"Casey" Jones handed me the prize story of the tour. A Chinese student pilot of Robertson's climbed aboard the Curtiss "Carrier Pigeon," looked into the mail compartment and with oriental politeness and gravity asked, "Is this where you carry the pigeons ?"

You don't have to think up funny cracks on this tour. They hand them to you. It's just like the old days at Kitty Hawk when Uncle Anthony taught the Wrights to fly.



The Junkers leaving Ford Airport

Departure from St. Louis was delayed three hours by a fog that had a real London accent. It was finally dissipated by hot air generated by the sun and press agents. It stuck to Capt. Ray Collins and Lieut. Harry Johnson in the path-finding DH as far as Vandalia, Ill., if anyone knows where that is. The rest of us, starting at 11 o'clock on, dragged through thin, or undernourished fog for 75 mi., until we hit Oofusgoofusville, Ind. From there on we enjoyed wonderful sunny skies and raised an appetite.

Indianapolis may mean many things to many men but to me it meant only lunch. I was so hungry I nearly bit a fat tour official after I landed. He saved himself by running ahead of us to the Officers' Club at Fort Harrison, where the kindly Indians had food ready. Strange to relate I saw no chicken. Instead we had steak.

Overnight at Indianapolis

As the Indianapolis people had not expected us to stay the night we had no banquet and thus failed to learn that the city was the center of aviation, as doubtless we would have learned had anyone been able to get at us with a speech.

Fokker, Jones, Lott, Bruno and I, (named in order of our percentage of manly beauty) got in a little dirty work over the radio. Fokker spoke feelingly of Fokker Jones, Lott and Bruno spoke appreciatively of Jones, Lott and Bruno, while I made a few sincere revelations about myself. We all had a good time except the audience, who could revenge themselves by tuning us out. I understand a couple of crystal sets were destroyed by their infuriated owners.

Mrs. Francis Bowhan, our Indian princess, who is flying with Chief Bowhan in a Travel Air, delivered a one minute speech that took one hour to compose. My speech took one hour and ran 30 seconds. Will some medical man tell me why I burst out in a perspiration when I make a speech ? I am one of the wettest speakers outside of a Turkish bath.

A newspaper account of our arrival was headed: "Delegation welcomes flies." I knew it would get about regarding those flies at Fort Wayne and Moline. Apparently the reporter expected we would bring them with us.

Bad Weather Ahead

We struck unusual weather at Indianapolis. Whenever the weather is rotten anywhere it is unusual according to the notices. Low down fog hid the desolation, that is, Fort Ben Harrison, from view until 11 a. m., when we all leaped into the air with glad cries.

The flight to Columbus, the birthplace of Christopher Columbus, was marred by one distressing incident. The charming Martin Commercial Plane in which I am touring, got a fish-bone stuck in its throat and nearly choked to death. I landed at McCook Field, residence of Dr. Cook, and found the Wright 64 suffering from water and complications in the jits. This was my own dumb fault, as I had neglected to strain the gas at Indianapolis. They speak of airplane flights

curing deafness. That is unnecessary. The crying need is something to cure dumbness. I was nearly down again before Columbus, which would have ruined me. There we strained all gas in both Richardson's and my Martin. This was a valuable lesson I had learned sixteen times before and forgot each time.

Delayed at Columbus

The tour arrived at Columbus too late to start for Cleveland Saturday, but it is as well. The pilots should enjoy this rest in the country before seeing the great center of civilization on Lake Erie. Everyone got to Columbus on time except the one dumb member referred to above and even he was not below his limit in lateness.

Young, the aerial stowaway, got here in the Carrier Pigeon. He was originally taken aboard at Des Moines by Chief Bowhan in the Travel Air, No. 2 to replace a Modock the chief had carried from Chicago. At Omaha, however, Frank Bogart of the *Detroit Times* had to leave "Casey's" plucked Pigeon and travel with Bowhan. This move pushed Young out of the Travel Air and left him stranded at Omaha. "Casey" took off later and caught up with the tour at St. Joseph. What was his amazement to see Young, who should have been in Omaha, crawl out from behind a gas tank. He had hidden there by the connivance of L. D. Gifford, motor nurse maid on the "Pigeon." This Young always intends leaving at the next stop—but he changes his mind—or what have you ?—and crawls aboard the motor cycle destroyer again.

"Casey" has tried to lose him, and each time the stowaway has exhibited spirited signs of departing—only to turn up at the next stop. I don't know where he finds fun in it. He's crowded in behind a big DH tank "Casey" had put in the mail compartment. He sees nothing and can't move a muscle. Here indeed is a Modock.

At dinner a large tin spoon was presented to Ken Boedecker by his affectionate friends in memory of St. Joseph. This dinner was just a little affair for us tourists alone.

E. A. Goff and T. Dale Haskins, who landed at Jewett, Ill., in the Swallow 34, repaired their motor by working all night without food. They had just two aspirins between them, which they ate. Missing the usual speeches, without which no evening on the tour was complete, Goff delivered Fokker's speech and Haskins delivered mine. As there was no audience the attendant suffering was reduced to a minimum.

On the last lap

The start from Columbus was delayed by fog until Doc Kincaid and I had blackjacked the innocents out of $4.00. Then we started for Cleveland at 11:30. I had a heavy list to port due to a cargo of nickels and dimes. Those with teeth marks on them had come from "Casey" Jones.

Fog and rain from Columbus to Cleveland, where Glenn L. Martin was waiting to see how his two planes were doing. I charged him $60.00 for looking at his own ships, under the guise of expense money.

The Cleveland Chapter of the N.A.A. provided gas and oil and an excellent lunch of chicken. But it was a good lunch, hot and well-served. In Cleveland I found that my wife had taken advantage of my absence to get a new suit and so forth for the N. Y. Air Races. I never go away, but something like that happens to the joint bank account. It's distressing, but why repine.

Cleveland to Detroit under thick clouds ended in heavy fog at Dearborn. Some of the tourists hit the field first shot while duller members circled several times looking for it. I wandered round ten minutes or so before I spotted Henry's searchlight, mounted on the hangar.

Lake Ford Again

Although we had been away a week, Lake Ford remained unchanged. The depth of water and the Verboten on Smoking remained the same. It was, if anything, worse. Henry himself was there and the poor chaps who work for him were talking in whispers.

W. A. Mara greeted me and announced gaily that a banquet for tourists would be served in the Ford hangar. I told him I hadn't flown 2000 mi. to eat in a confounded hangar when good hotels were available.

Someone said "Get in line and shake hands with Mr. Ford." I told them I wouldn't stand in line to see Charlie Chaplin, let alone Ford, who hasn't given me half the laughs Charlie has. But there were the tourists standing in line to annoy Ford and tickled to death to do it. Oh, Democracy ! They all murmured politely as they shook hands. There was exactly the same air about the business that there was when I was presented to King George V during the war.

Mr. Ford Greets Pilots

As I escaped, Major Schroeder asked if I had shaken hands with Mr. Ford. He seemed to think this the important part of the whole tour. I said I hadn't and that neither Ford nor I cared a snap about each other. But Schroeder insisted, so in I went again, into the Presence. The line had all annoyed Ford and vanished, so Schroeder and I took a crack at him.

Much has been written about the Fords, Henry and Edsel. I've met both and chatted with them. And I think that most of the stuff I have read about them is pure bunk. They're not super-men. Henry Ford is just an ordinary simple man struck by lightning. And Edsel is his son. Both looked tired and as though they had collected less than 2 per cent of the fun I have collected through life. What both of them need is to go off to the woods with two guys without any money, six cans of Scotch and lots of tobacco—and forget the old factory. This prescription applies especially to Edsel Ford. He seemed a nice chap, and I felt sorry to see that he very obviously was wearing himself out. Henry has learned how to loaf but Edsel hasn't. I noticed both took themselves seriously, another slight error. Well, I can't fix them. Let them fix themselves.

After a warm shower, change of linen, and a good dinner, I sat placid and content in my room, while Richardson, pilot of the other Martin, told me about the banquet in the hangar.

The pilots were seated at a round table to which negroes brought food of average quality. The passengers and mechanics had to form a line and get their own, cafeteria style. They were told, "You mechanics get in line with the other people. This table is for pilots only." And if it hadn't been for the mechanics, several of us wouldn't have got around. I may add that Martin Co. mechanics get the same good treatment as the pilots. The Detroiters formed a line hundreds long and grabbed what they could get at $1.50 per grab. It must have been lovely. It took the citizens one hour to get their food.

After the digestion had been insulted, a "Modock" made a speech. He introduced everyone in Detroit who had been near an airplane and told where he had seen it. Then he introduced each pilot. He spoke 45 minutes. Then, by the grace of God, he sat down.

By general consent I am declared the smartest man on the tour. I left their banquet flat and went to the hotel. The rest of them, after flying from Columbus, sat down, dirty and unrefreshed, as they were and ate the food. My only surprise is that any of the pilots were dumb enough to stay.

However, there is a bright side to the darkest cloud. Mr. Fokker did not give his speech.

Well, that's that. The Fokker Publicity Tour is ended. I have enjoyed the friendship of many splendid men, the hospitality of many kindly people in several cities. The rest of it is history.

Some Technical Aspects of the Planes in the Ford Tour

One of the most noticeable features of the start of the Ford Reliability Tour was the impression created by the organization of a flying meet in which military service aircraft were conspicuously absent. Reference is made to the start of the Tour itself, for this event is considered absolutely apart from any flying exhibitions, which were held in Detroit during the interim period during which the planes in the Tour were absent. The planes, before their departure, were subjected to the close inspection of all interested in watching the trend of design in the development of commercial aviation and the progress which has been made in the application of both aerodynamic and structural design to the production of airplanes specifically intended for commercial and private touring purposes, was very marked

has been a remarkable tendency for the engine cowling in these designs to cause the nose of the machine to be not unlike that of the Curtiss pursuit plane. Spinners, likewise are a common thing nowadays, over the propeller hubs of these designs, and such fine points as streamline intersectors are frequently fitted where bracing wires cross, in a manner previously unknown in this class of design.

The New Swallow three place machine, three of which started in the Tour, is a very graceful and good-looking design and exemplifies the characteristics just discussed in every way. It is a standard single bay type with normal wire interplane bracing. The undercarriage is striking in its very robust structure, being what might be termed a semi-split axle type, the axle forming a very obtuse angle at the point of

Courtesy Detroit News

The departure of the Ford entry, the Stout monoplane

The airplanes which started in the Tour may, for the purpose of discussion, be divided into three groups; the small single engined airplanes capable of carrying one and two passengers and suitable for the private owner pilot; the larger cross-country, essentially commercial, type adaptable to mail carrying and long cross-country service, and the passenger 'airliner' class, equipped with comfortable cabin accommodation for the carriage of passengers over regular air routes. Of the seventeen planes, which entered the Tour, ten may correctly be considered in the first class although there were several duplicate types; three are included in the second class and three in the last class. It will be noticed that one plane, the Mercury Jr., has been unclassed, being somewhat difficult to correctly place owing to its apparent adaptability in both the first and second classes respectively.

Good Design

It was impossible not to be very struck with the prevalent cleanness in the design of the newest of the light touring class of airplane. The influence of the principles developed in the production of high speed planes for military service, though possibly quite unconscious in the ideas of the designers, is, nevertheless, very noticeable in the effects it has had upon the lines of these small airplanes. In the past, it has been somewhat customary to neglect fineness of lines in streamlining the engine cylinders over the nose of the fuselage. In this class of design it was usually considered quite unnecessary to attempt a reduction in head resistance by the provision of cowled-in cylinder heads. Now, however, in contrast, every effort is apparently put into an endeavor to form the nose of the fuselage, even in these small airplanes, such that the minimum of head resistance will result. The consequence

interconnection with other members of the undercarriage structure at a height off the ground equal to the circumference of the wheels. Another very noticeable feature of the design of the New Swallow is the very adequate provision of inspection panels at the various important points along the wings and fuselage, little triangular transparent panels being located at important places, where adequate and at the same time quick inspection are necessary. All the control cables are situated inside the wings and fuselage, respectively, and, with the very complete inspection provision, this feature should be the cause of no trouble and actually, not only improve the looks of the plane and the performance in small measure, but also the durability of the controls themselves, for open wires are undoubtedly subjected to severe weather effects. This plane, it will be recalled, is equipped with an underslung radiator, a feature which, together with the overslung or center section type, was very much in evidence among the small planes at the Dearborn Airport on Sept. 28.

A Matter of Cowling

Very similar in many respects to the New Swallow and likewise possessing many of the advantageous features of modern development, were the two Wacos, which, however, arriving late and starting off on the Tour in an effort to make up as much lost time as possible, were not subjected to the same degree of close inspection as their prototypes. Like in the Yackey Sport, the engine cylinders of the Waco are not cowled but, since the machine appeared at a glance to have somewhat less radiator surface, the exposed cylinder heads are probably a necessary feature and, in any case, would seem to have but little effect on the speed of the plane, it appearing to be fully as fast as the New Swallow and, during the Tour, maintained a very fine record on speed. A standard

Vee type undercarriage with the normal axle and a very efficient shock absorber system assist in the simplicity of the entire design, while the fitting of ailerons on the upper wings only must undoubtedly greatly simplify the control cable system and, from the picturesque manner in which each of the Wacos came in to Ford Airport, performing very slow landings, one sideslipping from side to side in an endeavor to even still further shorten the landing run, would indicate that there was ample lateral control. It is recalled that the ailerons, though fitted only to the upper wings are of very fair size.

A Modern Old Timer

Reference has just been made to the undercarriage of the Yackey Sport, which, with the exception of one of the late Waco planes, was the last to leave on the Tour. The Yackey is quite an old timer in many respects but remains as good as ever. The first impressions gained after a cursory inspection of the machine, are that of a cross between a larger plane and a light plane, for the Yackey appears to incorporate all the best features of many larger planes used in the services, only upon a smaller scale. The machine even possesses a Reed metal propeller, which, though not new in itself, is certainly the latest and best to be had in many respects. The standard form of wing center section and cabin strut arrangement and the comparatively wide chord wings arranged with very large rake and braced according to normal lift and drag wire arrangements throughout the single bay, indicate a soundness of design which must render the Yackey Sport very suitable for cross country air touring and general use by the owner pilot.

The question of the advisability and the necessity of incorporating the principle of balance into the design of the control surfaces of small comparatively low power airplanes, is one which could be debated upon with much advantage. There was a time when the fitting of overhang portions of flap control surfaces forward of the actual hinge was a measure taken only when it was expected that the loads upon the control column and the rudder bar during maneuvering in the air would be large, and the balance principle was resorted to in an endeavor to relieve the pilot of some of the strain of controlling the plane. The practice of fitting balanced control to rudders in particular, and elevators and ailerons less frequently, has, however, during recent years, developed to a very marked extent and an unbalanced rudder may almost be considered to be an uncommon thing, while elevators are also frequently so designed, though the application of balance to the aileron on small machines, is less common.

This feature was very noticeable at Dearborn among the small class airplanes starting in the Ford Tour. The only exception in this class, is that of the Travel Air, which had no balanced control surfaces at all. The Laird may be particularly characterized by, not only a comparatively large balanced rudder, but by elevators of the "horn" balance type. Otherwise this machine was of normal aspect, ailerons, as in the Waco, being fitted to the top wings only and a very neat engine cowling being provided. The radiator surface on the Laird is divided and a small radiator is fitted each side of the fuselage just ahead of the leading edge of the lower wing, apparently a very good position from the point of view of cooling efficiency.

As already stated, the prevalence of balanced rudders in all the small planes makes the Travel Air almost stand out from the others, although there are more radical features than this which make this machine of different general aspect from most, a very noticeable feature being the strut, which extends on each side from the ailerons, which are fitted to the top wing only, downwards in a forward slanting direction to the lower wing. The ailerons on the Travel Air are of fairly long span and would seem to be very efficient. Again, the Travel Air, like the other planes in this class in the Tour, is characteristic in the very fine finish and particularly the close attention to detail design. The wing bracing wire attachments have been given very careful attention and give the impression of sturdiness and at the same time an ease with which replacements can undoubtedly be made.

In passing on to the airplanes included in the next of the classes previously outlined, the "Mercury Jr." comes up for consideration and, though undoubtedly strictly belonging to the second group, including the mail and freight and generally heavy cross country machines, the "Mercury Jr." appears to be so compact that its classification with the smaller planes is tempted. Despite its comparative smallness for a mail plane, this machine has a very good load carrying capacity being of the order of 400 pounds over a distance of 300 mi. with a Curtiss C6A engine, which is very neatly and completely cowled into the nose of a deep fuselage of good lines. The split axle type of undercarriage is employed but among the most interesting features of the plane are the balanced ailerons. Ailerons are fitted to the top wing only and the hinges, instead of being at the leading edge of the aileron are set back, thus giving a small but distinctive balance when the aileron is raised or lowered. The section of the ailerons does, of necessity, not conform to the trailing portion of the wing section but is of symetrical strut shape following the lines of the main section only over its after portion.

Leaving eighth in order from the Ford Airport in the start

Courtesy Detroit Board of Commerce

The New Swallow

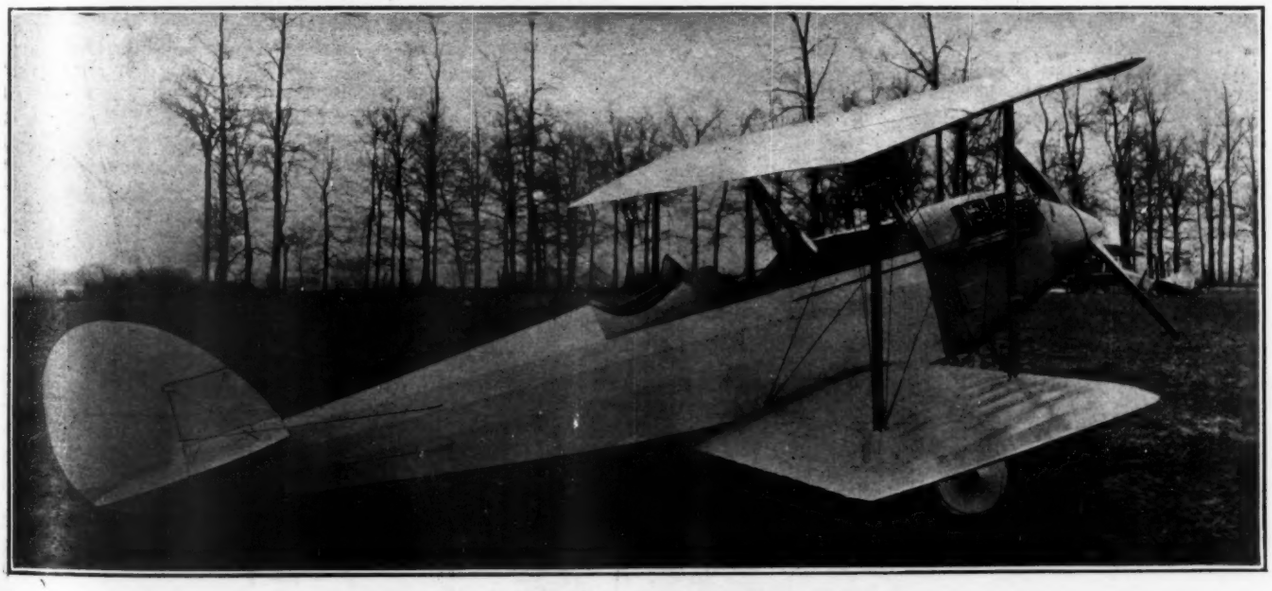
of the Tour was the Curtiss "Carrier Pigeon," which is, in many respects, so well known that further mention of its fine qualities would be unnecessary. The manner in which the hard and rough handling, which must be quite considerable in air mail and freight work, have been provided against in robustness of construction throughout, is very noticeable and it would appear that not a single opportunity to conveniently and without undue loss of performance, provide for extra strength and durability, has been overlooked. Again the split undercarriage is in evidence, and, in fact, is now practically standard in all Curtiss products, but the massive shock absorbers with which the Carrier Pigeon is equipped could find little counterpart in the majority of the planes at Detroit on Sept. 28. It would appear that this machine, assuming a reasonable area could get down safely in emergency on almost any class of surface that might be encountered, in fact the manner in which the plane took off the Ford Airport which itself was in no good shape, being deep in mud, was only characteristic of further possibilities.

Interchangeable Control Surfaces

As is well known, a major characteristic of the "Carrier Pigeon" is the great depth of the fuselage, necessitated by the mail and freight compartment, which is directly behind the engine section. This depth of fuselage, which even extends somewhat low down between the undercarriage struts, is probably responsible for the comparatively large fin surface over the tail plane. The shape of the fin, which is quite novel, is, it will be remembered, governed by the feature which enables the rudder to be interchangeable with both the elevators and the ailerons, thereby reducing the number of spare parts necessary in the event of a minor accident. This, in itself, is a most valuable point in the favor of this machine and its very robust all metal fuselage construction adds to its general all-round serviceability.

Of the cabin passenger carrying airplanes, or so-called airliners, to distinguish this type from the open cockpit passenger plane, there were three entered in the Ford Tour. The Maiden Dearborn, the Ford entry, being the well known Stout all-metal monoplane, scarcely needs special comment, since there have been no appreciable changes in it to need mention here. It is obviously very well suited to the class of service to which it is put by the Ford organization and its very massive construction in common with that of the Junkers, which also went off on the Tour, gives a good impression of adaptability to hard service.

The Junkers plane, it will be recalled, is not the standard type more common here, but is a special example brought over for the Tour, and appears to be somewhat under powered. It has a larger wing span than the older type and is equipped with a B.M.W. engine developing 185 hp. and five passengers and a full load of fuel appeared to be almost too much for the machine, for the take off was long and sluggish and the climb very poor. In itself, the Junkers was similar in all respects to the type already common, while the 3-engined Fokker, which went off with a heavy load in a remarkably steep climb, has already been described recently in these columns, it being almost identical to the single engined FVII, only equipped with three Wright "Whirlwinds." The radial engine undoubtedly has a tremendous future, its major disadvantage being in the difficulty of satisfactorily streamlining it into the rest of the design. The complete absence of the necessity of radiators, is, however, a tremendous point in the favor of the radial engine, not only on account of the reduction of weight, for neither the radiator nor the water necessary will figure in the weight estimate of a plane fitted with aircooled engines, but also in the minimizing of possible trouble, since radiators are well known as vulnerable parts of an airplane design. Further, with the exception of the wing radiator, the elimination of the radiator in the aircooled type will mean a reduction in head resistance, which may well counteract the additional head resistance due to the difficulty of streamlining, attendant upon the incorporation of the radial engine.



The New Waco, two of which type were flown in the Tour

Aeronautic Safety Code Published

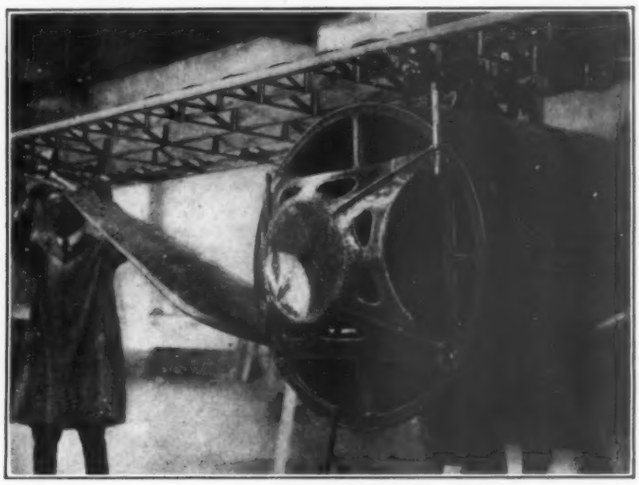
The major step in the work of the Aeronautic Safety Code Sectional Committee, which is sponsored by the Bureau of Standards and the Society, is now completed with the publication of the Code. The work on the Code has been in progress since 1920 by a carefully selected and widely representative group of experts in the aeronautic and closely related fields. The several parts of the Code were printed in tentative form and widely distributed for the purpose of securing constructive criticisms and suggestions that were subsequently given the broadest possible consideration in preparing the final Code.

The Code is issued as a Tentative American Standard under the procedure of the American Engineering Standards Committee, it having been approved by the Bureau of Standards early this summer and by the Society of Automotive Engineers at its Semi-Annual Meeting at White Sulphur Springs, W. Va., last June. The Code is printed in pamphlet form and can be obtained from the Society at 29 West 39th St., New York City at $1.50 per copy.

Magni Air Resistance Brake

Further Attempts at Reducing the Landing Run of Airplanes

A good gliding angle and a slow landing speed have certain undeniable advantages but such machines have a habit of 'floating' two-thirds of the way across a field and there is nothing which annoys a pilot more than being unable to make the wheels stick to the ground when there is a fence ahead. The experienced pilot side slips his machine in to kill his speed and to lose altitude more quickly but even this method has certain obvious disadvantages.



The Rotatable flap can be seen in the above view

Various schemes for braking and thus reducing the gliding angle have been tried out but the experiments have been attended with only moderate success.

Previous Experiments

The experiments have been carried out chiefly in England. Panels which hinged out from the side of the fuselage were tried but took considerable force to operate. A revolvable panel set between the struts of a biplane and running parallel to the wings was tried with somewhat better success but set up considerable strains as well as extra resistance during normal flight. This device worked better but once on the ground no air resistance brake has much effect and little practical application was made.

A Very Clean Design

A new Italian sport plane constructed by the Laboratoire Costruzioni Aeronautiche Piere Magni of Milan tackles this problem in a manner which looks both simple and practical. The plane in which the device is installed is a single seater sport plane of very clean and pleasing lines. It is a monoplane of the parasol type and is fitted with a 50 hp. Anzani engine. Pierre Magni has built a series of sport planes and the present machine is being used as a flying laboratory for the testing out of various ideas. The wing is placed on the level of the pilot's eyes so that the 'blind' area is practically nil. The wing consists of five plywood spars with appropriate cross bracing and the whole covered with veneer. The fuselage is built of wood and is circular in form and of semi-monocoque construction. The engine mounting is made of metal, is quickly demountable and carries the 50 hp. Anzani engine.

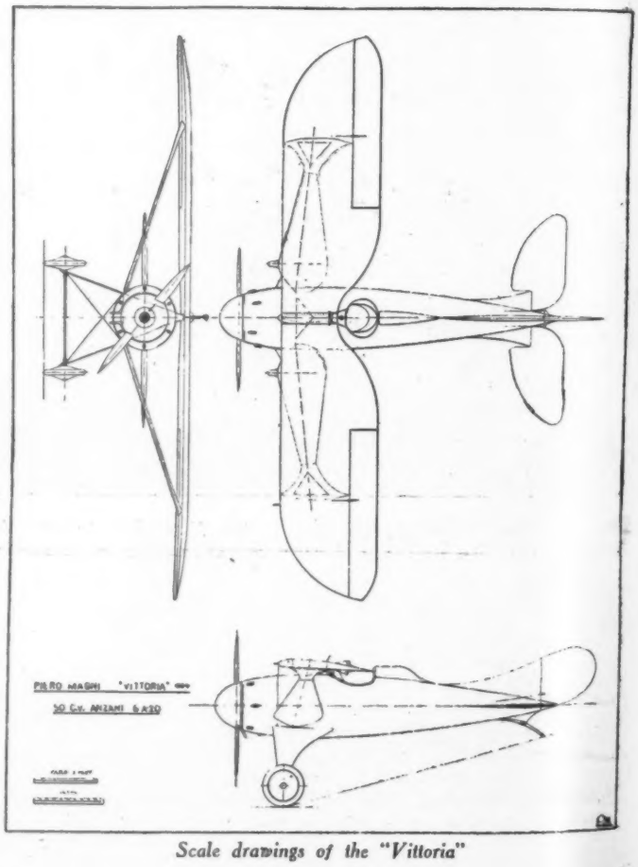
The wings are braced on either side by tubes which run from the bottom of the fuselage to a point about two-thirds of the way out on the wings. Over these single tube struts has been built a very wide fairing outwardly somewhat reminiscent of the Bellanca system of wing bracing. This wide fairing which really is a wing area of considerable size gives a dihedral effect. This, however, is only an incidental function. The 'Ailettes' (winglets) are movable about the bracing tube and when the pilot wishes to use them as a brake he pivots them so that they have a greatly increased angle of incidence and ultimately can be brought to an angle of 45 deg. with the air flow. This greatly increases the resistance of the whole machine and gives a steep gliding angle and a short roll. The 'Ailettes' are controlled by two levers in the cockpit one for either side. Lateral trim can be obtained by differential use of the 'Ailettes' but by using the left hand lever alone the angle of incidence of both can be changed equally and at the same time.

Light Planes in Research

The winglets would seem to be somewhat, though not much, below the center of resistance of the machine giving a downward pitch to the plane when their resistance was increased. This is counteracted by a very large balanced elevator with no fixed vertical stabilizer. It must require considerable knack to handle the device especially when the change is made close to the ground.

The machine has a 26 ft. 3 in. span, a length of 18 ft. and a wing area of 116 sq. ft. It weighs 510 lb. empty and has a useful load of 281 lb.

Apart from the interest surrounding this small airplane owing to the incorporation of the air brake novelty, there is a second point most noteworthy. Fitted with a 50 hp. Anzani engine, this plane could almost be considered to belong to the light plane class and since, according to the intention of the designer, the machine is used, not only to test the air brake principle, but also for experiments, it must be considered as an example of the use of the light plane in research in a manner previously suggested in the columns of AVIATION.



Scale drawings of the "Vittoria"

An Anti-Stall Safety Device

A Simple Device Which May Prevent 75 Per Cent of Accidents

A spectacular demonstration of the increasing trend toward making flying safe was given recently at Curtiss Field, Garden City, L. I., when the new Savage-Bramson anti-stall gear was shown in operation for the first time in the United States. After the demonstration, Major John B. Brooks, executive officer of Mitchel Field, the Army Air Station, stated, "I consider this new device a great step forward in making aviation safe and believe that it should be installed on all planes."

The anti-stall device was developed by the technical staff of the Skywriting Corporation under the direction of Capt. Louis Bramson. It was conceived by Mr. Bramson and Major Jack Savage. Major Savage invented Skywriting a few years ago. His new device is less spectacular but infinitely more important to aviation.

"Stalling" is the term applied to the action of an airplane in losing speed with the nose pointed upward and the result is invariably a swift dive toward the ground. If this occurs while the plane is high enough, the pilot has time to correct it and glide down but if an airplane stalls near the ground there is no opportunity to right it in time.

75 Per Cent Accidents Start in Stall

Statistics gathered by Major Savage show that 75 per cent of all airplane accidents are either caused by or aided with a stall. Any stall can be avoided if it is caught before it actually occurs. This is what the Savage-Bramson anti-stall gear does. It gives a definite and unfailing warning to the pilot the moment a stall becomes imminent.

The device, as it is at present, weighs but five pounds, but Major Savage intends to manufacture others of varying sizes for light and heavy planes. It is simple in construction, inexpensive and not cumbersome.

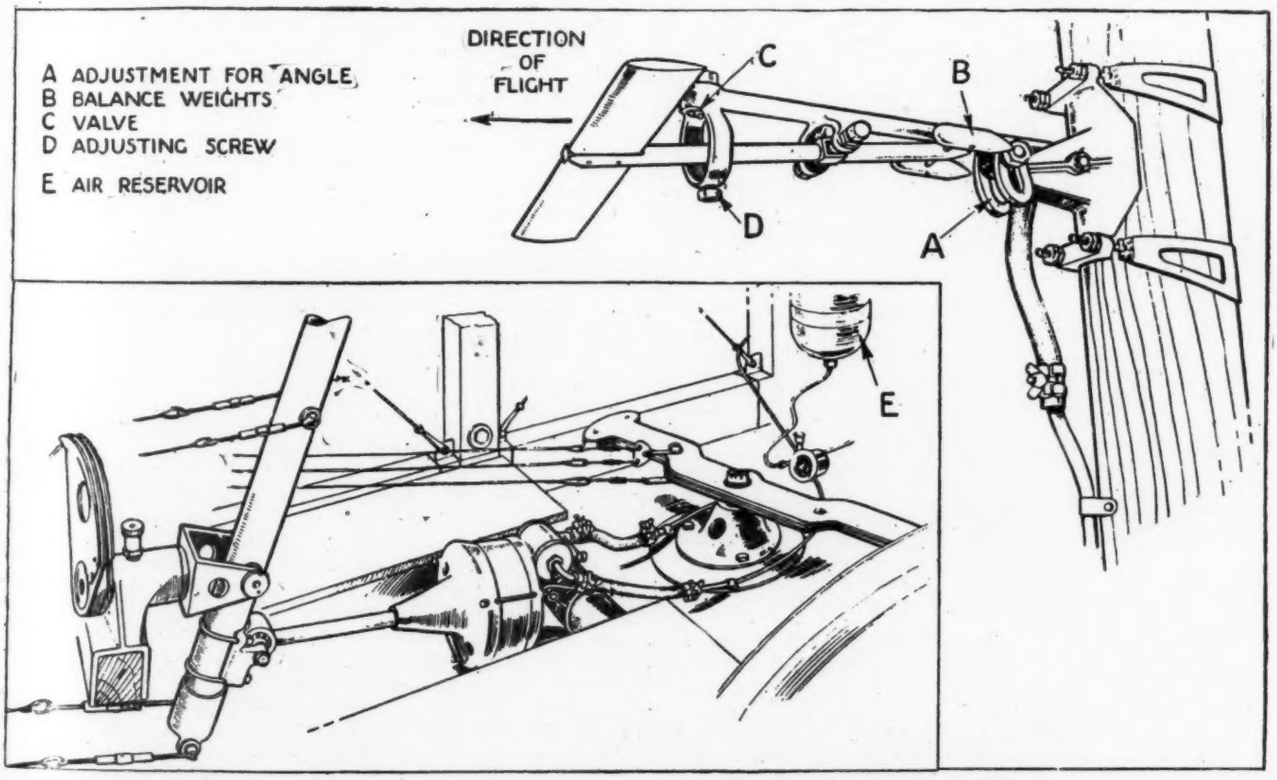
A miniature wing or vane is placed on one of the struts near the end of the wing and this is controlled by the direction of the air flow past it. In ordinary flying the vane is held at a level, but as soon as the nose of the plane points up at a dangerous angle the wind flow strikes the bottom of the vane, pushing it up and opening a small valve which is connected by a relay system to a pneumatic device which gives the main control stick a sudden push forward. The angle at which the vane operates may be regulated to a fine point. The force, automatically applied to the control stick gives the pilot an unvarying warning and one which he cannot fail to understand.

Direct Action on Control Stick

In designing the anti-stall gear, it was taken into consideration that the one point of continual contact between the pilot and the ship was the main control stick. While flying the pilot always has his hand on this lever and any signal given through this medium is bound to reach him immediately. A further advantage is that the anti-stall gear actually pushes the lever in the right direction and levels out the ship unless the pilot pulls against it and overcomes its power.

The pilot has only to yield to the force on the control lever and the plane straightens out and gains speed. As soon as it is at a safe flying angle the correcting impulse on the control lever ceases.

In tests of the device, made in England, ships were flown and an attempt made to stall them at every angle, both with the motor going full blast and with it cut off altogether, and in every instance the anti-stall gear worked perfectly. There is nothing in the device to go out of order and its light weight makes its universal adoption a practical certainty. It has been officially accepted by the British government for their military and commercial planes. After the demonstrations



A complete diagrammatic layout of the Savage-Bramson Anti-Stall gear. The top drawing shows that part of the gear which is attached to the interplane strut, while the internal mechanism, which actually applies the correcting force to the control stick, is shown in the lower diagram

here, Major Savage intends to manufacture the device in this country and believes that it will come into general use in American planes.

According to Major Savage and other flying experts, practically all of the fatal accidents which occur to flying students occur because in a difficulty such as engine stoppage, the pupil instead of pushing the control lever forward to send the nose down and gain speed, invariably pulls the stick back, shoving the nose of the plane up and stalling it in the air. The natural result is that the heavy motor pulls the plane down and it starts to plunge earthward.

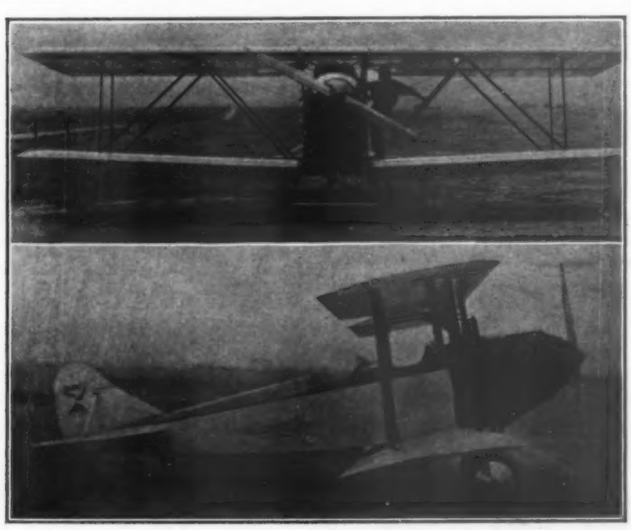
The anti-stall gear kicks the control stick in the right direction just before the plane reaches the stalling angle. Even veteran pilots often fall into the stall trap. Every year the loss of flying officers and material reaches an enormous total and a device which will remove the cause of 75 per cent of the accidents will mean the saving of lives and dollars. Fear of the stall is also acting as a powerful deterrent to the full use by the public of the established commercial airways.

The Eaglerock 3 Passenger Touring Airplane

The Alexander Aircraft Company, a subsidiary of the Alexander Industries, has recently turned out a very interesting three passenger touring plane, of very clean design, as will be observed from the accompanying photograph. The airplane is equipped with an OX5 Curtiss engine developing 90 hp., and is, therefore, very economical in operation. Simplicity and safety in operation have been earnestly sought in this design which undoubtedly reflects credit upon Daniel Noonan, chief engineer to the Alexander Aircraft Company, who has been responsible for its inception.

Factor of Safety High

With the object of obtaining the greatest safety every endeavor has been made to produce a high value for the factor of safety of the entire plane and this figure is given as 7.7 for the complete design. The approximate weight is 1000 lb., which, carrying, as it does a load of 800 lb., renders it a very serviceable and at the same time light weight plane suitable for the owner pilot.



Two views of the Eaglerock. The wheel type tail skid is apparently not fitted to this particular plane

The machine is a biplane fitted with U.S.A. 27 wings. Spars are of I section straight grain spruce with a maximum depth of 8 in., insuring rigid strength. Ribs are of built up Pratt construction and each rib is given a test to assure maximum strength. Duralumin tubing is used for internal bracing and double drift wires protect against drift strains. A special fitting is designed to carry the drift load along the front spar. Warren type interplane trussing takes care of the folding wing feature, assuring positive an accurate rigging upon folding out the wings.

The fuselage, while following successful standards of airplane practice, is of exceptional design and construction. It is constructed of steel tubes throughout but the joints, instead of being along the usual lines of riveting or welding, are formed of special clamps, thus doing away with any trouble which might otherwise occur from cracked joints, it is claimed.

Specifications

The control system is simple in design, there being no aileron wires, the control being through duralumin tubes to the stick and operating the ailerons through torque tubes. Furthermore, there are no pulleys to be attended to. The rudder is balanced to minimize fatigue during long cross country flights.

The wheel type tail "skid" is noticeable and novel and, being fitted with a brake operated from the cockpit, it is claimed that taxiing, even along the roadway, is possible and with the wings folded safe. The general specifications are contained in the following table:

Weight	about 1000 lb.
Span	31 ft. 9 in.
Span with wings folded	11 ft.
Overall length	22 ft. 8 in.
Height	9 ft.
Airfoil	U S.A. 27
Cruising radius	400 mi.
Useful load	800 lb
Maximum speed	90 mi./hr.
Landing speed	31 mi./hr.
Climb with full load	550 ft. per min.
Motor, 90 H.P. OX5 Curtiss	

It is interesting to note that the Alexander Aircraft Company announces that the price of the airplane ready for the air is $2475.00 "S.O.F. (Ship on Field)" Denver.

Orteig Prize for Trans-Atlantic Flight

Announcement was made June 1, that the Raymond Orteig prize of $25,000 which had been offered to the aviator who first crossed the Atlantic Ocean in an airplane in non-stop flight between Paris and New York, has been formally extended for a further period of five years from June 1, 1925. The announcement was made on behalf of Raymond Orteig of this city, who made the original offer in 1919, by his counsel, Col. George W. Burleigh of the law firm of Delafield, Thorne & Burleigh.

Under the terms of the new offer the following trustees are named to administer the prize:

Maj. Gen. James G. Harboard, U. S. A., retired, President Radio Corporation; Maxime Mongendre, French Counsel General, Radio Corp., New York; Col. Franklin Q. Brown, President Army and Navy Club of America; Col. George W. Burleigh, Judge Advocate General's Department O.R.C.; Col. Walter Scott, vice-president, Butler Bros.; M. Lucien Jouvaud, President, French Benevolent Society; Raymond Orteig, Jr., son of the donor.

It was also specified that the competition should be held under the rules of the National Aeronautic Association and the Federation Aeronautique Internationale.

The presence of a number of French aviators in the United States during the World War and in the months following many of whom became friends of Mr. Orteig, who was himself born in Pau, France, although he has long been a resident of the United States and now has full citizenship, suggested to him the offering of a prize for trans-Atlantic flight.

Under the terms of the original offer aviators of any Allied nationality were eligible to try for the prize, and this condition is continued with the proviso that the competitor hold an Aviator's certificate issued by the National Aeronautic Association, and be duly entered on the Competitors' Register of the National Aeronautic Association.

Under the terms of the competition the start or landing may be made from land or water. If a land plane is used the point of starting or landing must be within fifty miles of Paris or New York. If a seaplane or flying boat be used, the start or landing must be made from a point within fifty miles of New York and the start or landing may be from or on any point on the coast of France.

The Ireland Comet

A Commercial Airplane Using the Curtiss Oriole Fuselage and New High Lift Wings

Since the available supply of Jennies, Standards and Canucks is practically exhausted, G. S. Ireland, Sales Representative for the Curtiss Aeroplane and Motor Co. Inc., conceived the idea of making use of the spare Oriole fuselages, which are well known for their extreme safety and durability, and equipping them with high performance wings and an OX5 engine.

He secured the services of one of the Curtiss engineering staff for the necessary design work, and a set of wings was developed which will fit any of the small wing Oriole fuselages. The resulting ship has been named the Ireland "Comet" and offers to the aeronautical world a low-priced, sturdy and reliable three passenger airplane, capable of withstanding extremely rough usage.

The Comet takes off with two passengers and pilot and forty-five gallons of gas in a flat calm after a run of only 9 sec., and climbs 700 ft. the first minute. It lands at 40 m.p.h. with no undersirable floating. The guaranteed high speed is 90 m.p.h. but the ship has averaged 96 m.p.h. out and back over a measured course. It will remain in horizontal flight, without losing altitude, at 850 r.p.m. and has adequate aileron control at stalling speed, showing no tendency to fall off into a spin. The machine is balanced with power on or off under all conditions of loading.

There has been some prejudice against the laminated monocoque type of fuselage on account of the belief that it is difficult to repair. This belief has been shown to be unfounded by the recent repair of a fuselage which had been in a severe crash. The extent of the damage may be realized when it is known that three wings were completely broken off, the lower wing stubs pulled out, the landing gear fittings torn off, the whole bottom crushed in, three diaphragms broken, and other miscellaneous injuries sustained. This fuselage was repaired with less difficulty than would have been the case with the conventional type and the ship is doing hard service daily.

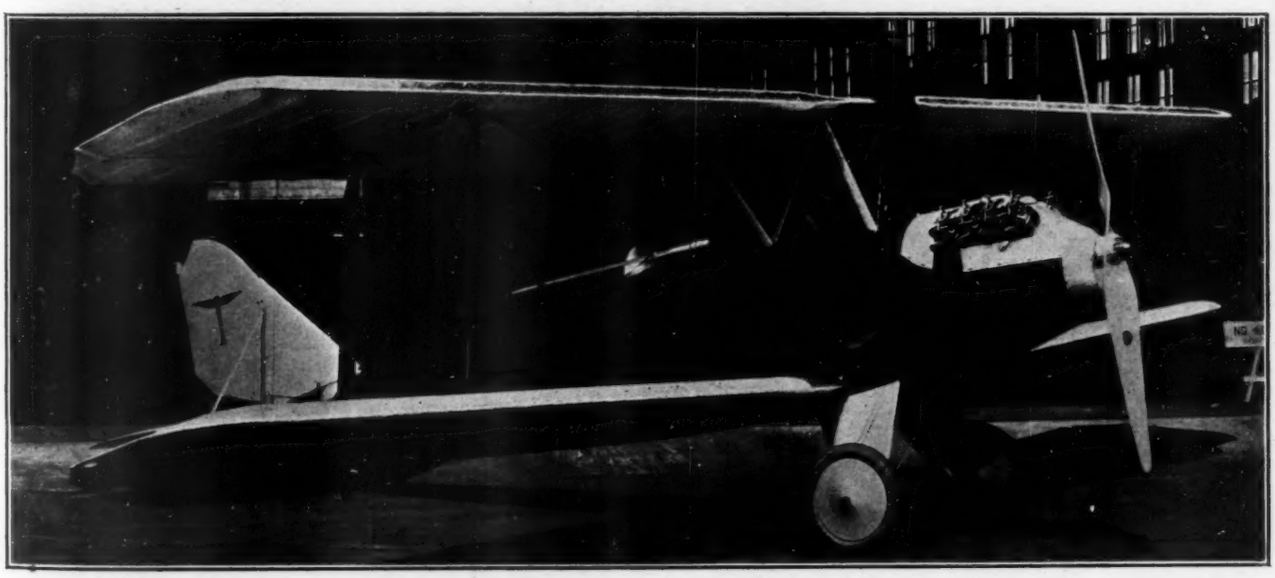
The wings of the Comet are designed to a load factor of nine as a minimum, for the high incidence condition, and at important points, such as the flying wires, this factor is as high as thirteen. The fittings are of very simple and rugged design, no welding or brazing being employed. All material used, is subjected to rigid test and inspection.

While the ship is supplied with the OX5 engine, ample excess strength is provided for the installation of the Curtiss C6, or K6, or the Hispano-Suiza, any of which may be readily substituted for the OX without structural changes. High speed with the C6 is 115 m.p.h. and the climb is double that with the OX, while the landing speed remains practically the same.

CHARACTERISTICS

Length, overall	25 ft. 10 in.
Height, overall	10 ft. 2 in.
Span, upper and lower	36 ft. 0 in.
Chord, upper and lower	5 ft. 0 in.
Gap	5 ft. 3 in.
Stagger	12 in.
Angle of incidence, upper wing	3.5 deg.
Angle of incidence, lower wing	3.5 deg.
Sweepback	0 deg.
Dihedral, upper wing	0 deg.
Dihedral, lower wing	2.5 deg.
Angle of ship when resting on ground	11.5 deg.
Span, tailplane	10 ft. 0 in.
Area of wings, including ailerons	336 sq. ft.
Area of ailerons	44 sq. ft.
Area of tailplane	18.5 sq. ft.
Area of elevators	17 sq. ft.
Area of rudder	10.5 sq. ft.
Area of fin	4.8 sq. ft.
Track of wheels	5 ft. 0 in.
Weight, empty	1365 lb.
Useful load	835 lb.
Fuel and oil	310 lb.
Crew	175 lb.
Pay load	350 lb.
Total weight	2200 lb.
Wing loading	6.55 lb./sq. ft.
Power loading	24.44 lb./hp.
Fuel capacity	45 gal.
Endurance at cruising speed	6.5 hr.
Range	520 mi.
Maximum speed, full load	96 m.p.h.
Landing speed, full load	40 m.p.h.
Climb to 1,000 ft., full load	1 min. 57 sec.
Climb to 5,000 ft., full load	5 min. 6 sec.
Climb to 2,000 ft., full load	16 min. 0 sec.
Service ceiling	7500 ft.

For those who do not wish to carry passengers, the ship can be furnished with a covered baggage compartment of 22.5 cu. ft. capacity. Equipped thus and using a C6 engine, with 500 lb. of baggage, its performance practically equals that of a Standard Air Mail DH but with a slower landing speed.



Three-quarters front view of the Curtiss Ireland Comet

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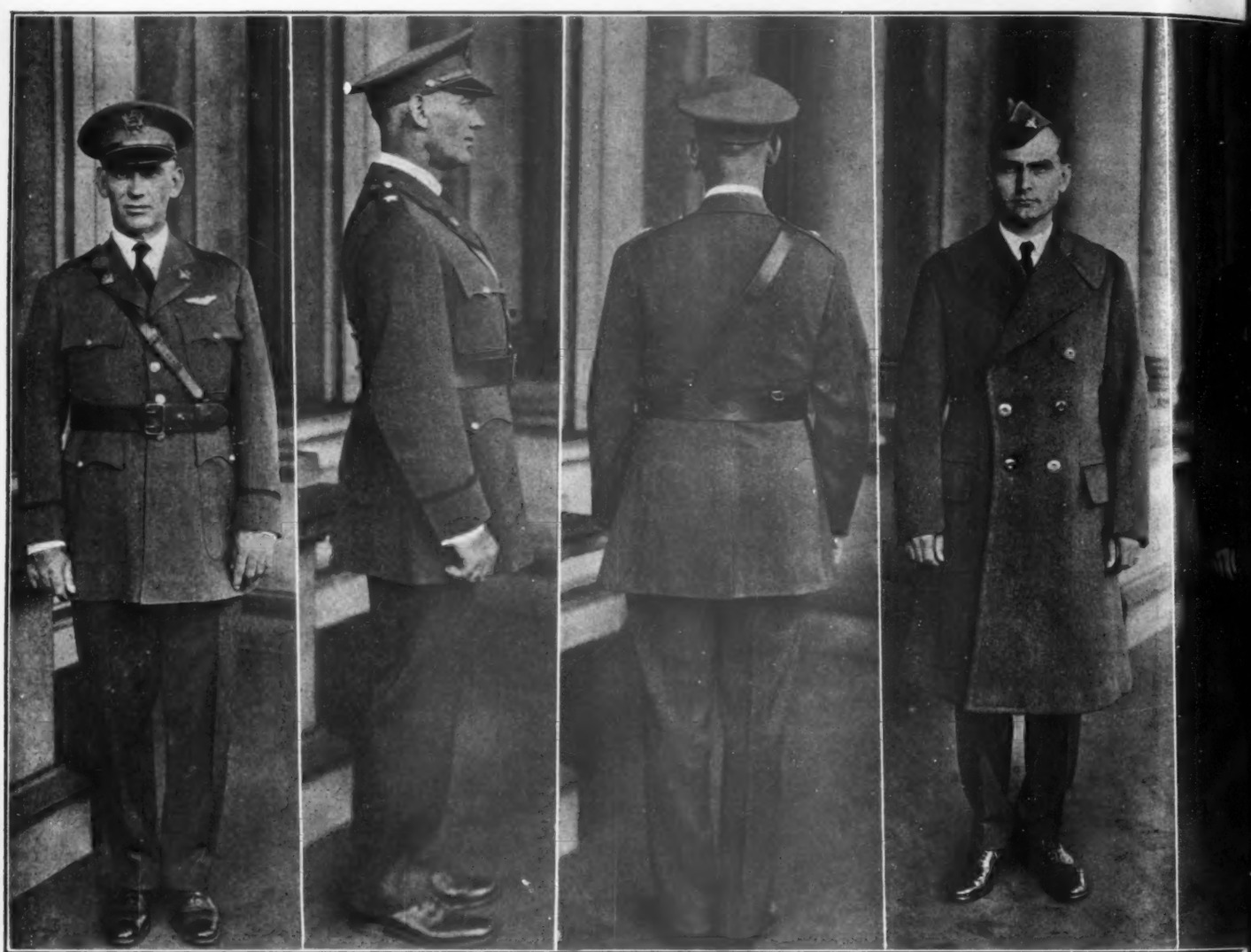


The New Air Service Uniform

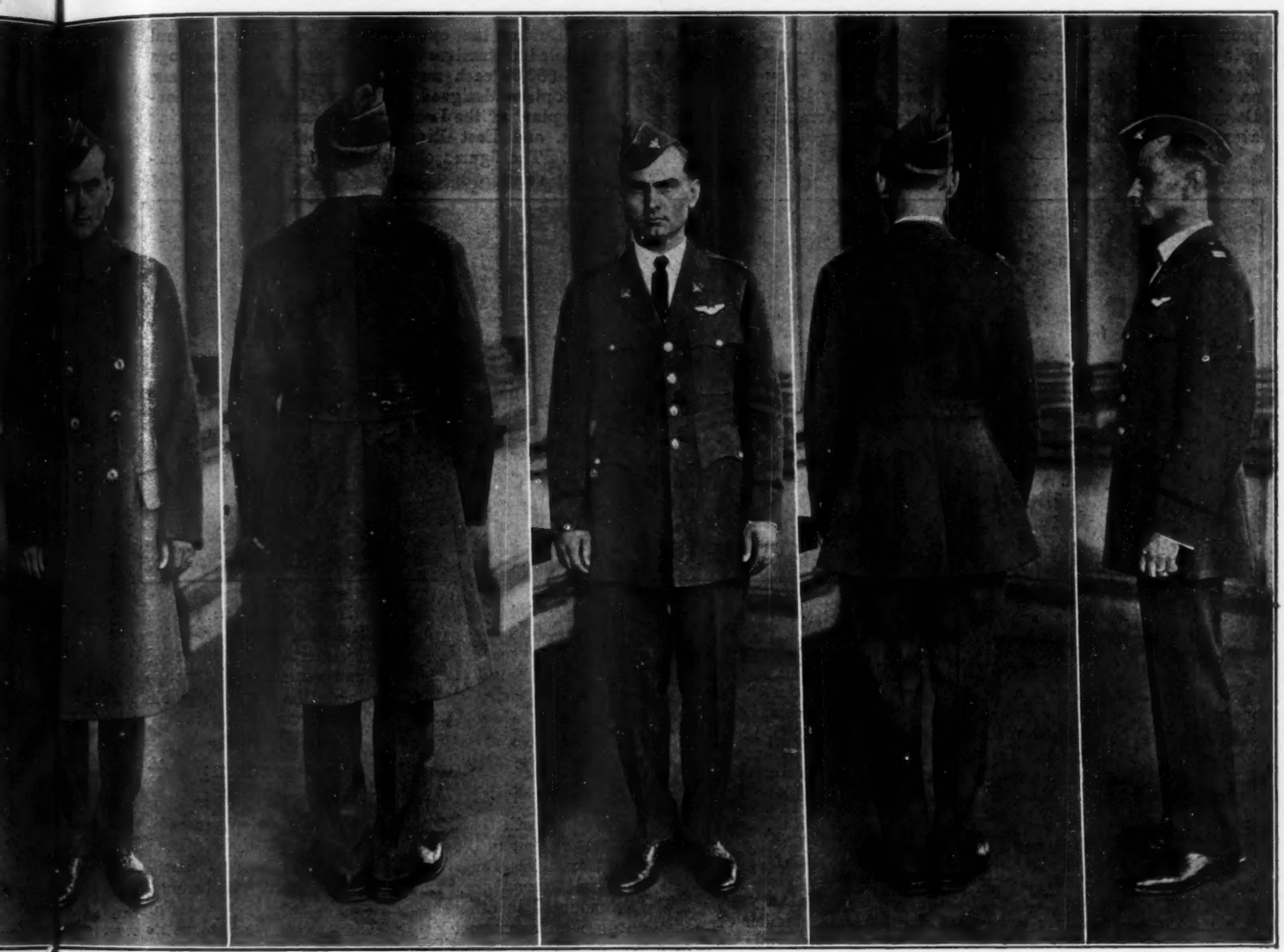
The fine set of photographs reproduced herewith, show the new Air Service uniform as worn by Gen. James E. Fechet and his aide, Capt. Ira C. Eaker on the occasion of their visit to the Acting Secretary of War, the honorable Dwight F. Davis. The first three pictures on the left show General Fechet in the new field service uniform. The last three on the right show Captain Eaker in the flying duty uniform. This uniform differs from the field service uniform in that the Sam Browne belt is not worn and the cloth cap is substituted for the former regulation cap. The center photographs were taken of Captain Eaker in the new regulation overcoat. This overcoat is very similar to the old regulation overcoat and the principal change is in the provision for wearing it with a Vee neck. All of these pictures show the officers wearing trousers or "slacks" as they are colloquially referred to.

General Fechet and Captain Eaker called on the Secretary of the Army on Sept. 11, and presented the tentative specifications for the new uniform and wore the samples illustrated above. Assistant Secretary Davis, after looking the uniforms over, ordered some changes in the location of the devices indicating the branch of the service, and other minor changes. After these changes are made, he stated that he would approve the regulations and specifications.

For actual service on a flying field, the usual khaki wool shirt may be worn and the shoulder straps on the shirt are not required when it is worn with the blouse. The present regulation breeches are intended to be worn with the new uniform. When breeches are worn, either golf stockings or field boots may be worn. For the information of our readers, what is known as a "field boot," is a laced boot. The unlaced boots are referred to in regulations simply as "boots."

The new uniform will be made of the same cloth and of the same color as the former regulation type. When the new uniform was first considered, it was proposed to make it of Royal Italian aviation blue with green gold braid and brass buttons. This proposition was not acceptable to the general staff and the present design is a compromise. The primary

HE NEW ARMY AIR SERVICE UNIFORM



purpose of the new design is to relieve flying officers of flying with a high stiff collar and having to try to keep the old cap in condition in the cockpit of an airplane.

The following is a general description of the new uniform:

The officer's coat will be a single-breasted four-button coat made of the same material as the present one with a roll collar and notched lapel. It will have four pockets with flap on each. It will be cut to extend two or three inches below the crotch and to fit the figure easily over the chest and snug at the waist. It will have a belt two inches wide sewed down, all round the waist. All insignia will be embroidered in gold and silver bullion.

The overcoat will be a double-breasted four-button overcoat with roll collar and notched lapels. Three buttons will show below the end of lapel roll. The coat will reach one inch below the knee. The insignia of rank will be on shoulder loops.

The cap will be similar in type to the overseas cap and will have a piping of ultra-marine blue with golden orange threads.

The boots will be similar to the present field boots, but need not necessarily be weatherproof, nor with bellows tongue.

The olive drab shirt will be of the existing type, except that shoulder loops need not be worn when the coat is worn.

Stockings will be "golf commercial," plain tops and made of olive drab wool.

It is expected that formal orders announcing the new uniform will be issued to the service within a short time.

Seaplane to Overtake Liner

An exciting chase of a liner by two American Senators in a seaplane took place recently.

They missed the Leviathan when she sailed from Southampton for New York and at once chartered a seaplane from the local airport.

Difficulty arose because the seaplane was new and unlicensed and special permission to carry the passengers had to be obtained over the phone from the Air Ministry at London.

The Senators embarked on the plane at 3:30 o'clock, flew after the liner and caught her at Cherburg at 4:20.

Doisy Wins Michelin Cup

Pelletier Doisy who was the hero of the Paris Tokio flight of last year has again covered himself with glory by winning the Michelin Cup. This cup may be contended for at any time during the course of the year and is awarded to the machine making the best elapsed time over a distance of approximately 1,770 mi. around a circuit which covers the principal cities of France. Doisy, who was flying a Spad, fitted with a Lorraine Dietrich engine, covered the distance in an elapsed time of 15 hr. 8 min. or approximately 118 mi./hr. Doisy's nearest competitor was Lieutenant Arrachat who averaged 95 mi./hr.

A front view of the Boeing mail plane showing the construction of the inner bays and the landing gear as well as the clean nose

Record Schedule of Commercial Aviation

What is claimed to be a world's record on regularity of operation and safety in commercial aviation was completed during August by Clifford Webster of Port Washington, L. I., in a 400 hp. Loening Air Yacht. For four weeks without a single miss, this same plane with the same pilot has operated daily from the base of the Curtiss Metropolitan Airplane Co. at Port Washington, L. I., to Saratoga, N. Y., by way of the Hudson River.

The total distance flown in four weeks by Webster and his Loening plane was 9120 mi. in 88 hr. 30 min. with 100 per cent service. This would be at the rate of 112,000 mi. a year. Individual seaplanes have never totaled this record number of successful trips on schedule, because on most of the seaplanes in Europe, the machine making a trip one day is generally laid up the next for overhaul and maintenance, and goes out the day following. A few records have been made for a week at a time, but a study of the statistics of the air lines shows that Webster's record for four weeks continuous flying is one of the finest ever made.

During the trips the Daily Racing Form Publishing Co. availed itself of the plane to send several thousand copies of its *Daily Racing Form* and a representative to Saratoga. The daily schedule that was maintained was to start from Port Washington at 5:45 p. m., arriving in the Hudson River 15 mi. away about 10 min. later where the load to be transported was taken aboard at the foot of West 82nd St., the pilot taking off at 6 o'clock and arriving at Saratoga, after having flown right up the entire length of the Hudson River Valley, before 8:00 p. m. In forty-eight trips that were made daily, except Sunday, the average time for the distance of 175 mi. from the Hudson River to Saratoga Lake was 1 hr. 40 min., giving an average cruising speed of the plane of well over 100 m.p.h. The schedule was maintained with a variation in time of only 10 min. at most throughout the four weeks from Aug. 3 to Sept. 1 regardless of rain and other inclement weather which Webster, the pilot, had to contend with. On several of the trips he had to fly through thunder storms, and under conditions which would have been impossible for a land type of plane without great risk. But as the Loening Air Yacht used is a seaplane, by following the Hudson River, the pilot was able to keep a landing place under him almost the entire distance.

The engine used in the Loening Air Yacht is a Liberty engine built by the Ford Motor Co., and gave absolutely perfect service, no overhaul whatsoever being necessary during this period. During the operation of the service, several passengers availed themselves of the quick trip to Saratoga and a fare of $50.00 each way was charged. The seaplane used is a monoplane designed by Grover Loening and constructed at the plant of the Loening Aeronautical Engineering Corp., 31st St. and East River, New York City, and was built last Fall. The figures obtained during this New York-Saratoga operation on gas and oil consumption, mileage of the plane, regularity of the service, and general maintenance requirements, are considered to represent a very valuable contribution to the development of commercial aviation.

A Hot-Wire Anemometer for Measuring Air Flow Through Radiators

In connection with tests being conducted on airplane radiators at the Bureau of Standards on behalf of the National Advisory Committee for Aeronautics, a portable instrument was required to measure the average flow of air through radiators mounted in different positions on an airplane. For this purpose an anemometer was constructed, which consists of a grid of platinum wires heated by an electric current from a storage battery. This instrument is described in Technologic Paper No. 287 of the Bureau of Standards by Carl G. F. Zobel and L. B. Carroll.

The flow of air cools the wires and the amount of electric current necessary to maintain them at some definite temperature serves to measure the velocity of air flow. The air velocity can be measured to within 5 per cent if the grid of wires is placed immediately in front of the radiator or at least 12 in. back of it. Turbulence of the air immediately back of the radiator interferes with correct measurements. The only electrical measuring instruments necessary for reading the air velocity by this means are an ammeter and a voltmeter.

More Fokker Records

In addition to the four World's Records made on June 16 with a Fokker DXIII pursuit plane, another type Fokker ship, an F7 ten passenger monoplane, piloted by Engineer Grase broke two more World's Records. Carrying a useful load of 1500 kg. (3300 lb.) in addition to the pilot and fuel, an endurance record of 3 hr. 3½ min. was made. This flight also beat the endurance record for useful load of 1000 kg. and has therefore been officially homologated by the F.A.I. as two World's Records.

The President's Air Board

Nearing the End of Its Hearings Uncovers Real Sentiment of Fliers

THE hearings before the President's Air Board will end after another week of inquiry. Its success in revealing the true state of mind of the aviation personnel of the Army and Navy has been its outstanding achievement. Heretofore, the officers of the lower ranks have not been willing to brave the wrath of their superiors. Consequently, the country has only been given the official point of view of the Departments. Until recently ex-General Mitchell has been the only officer willing to take a chance. But with the assurance to the Board directly from the Secretaries that officers could give their opinions freely, the lid came off and from a seething cauldron has risen the smouldering fire of dissatisfaction.

It would be unfortunate at this time to speak of the lack of courage exhibited by officers during the last five years as the expectations of even the most optimistic have been greatly exceeded. After the Army, Navy, Post Office and Department of Commerce had all told the Board that all was well with governmental aviation, the system and the personnel, General Patrick led off with an attack and recommendations that gave the country its first insight into the dilapidated structure of the War Department.

Air Service Testimony

Then followed such leaders of thought in the Army Air Service as Major Walter A. Kilner, Major Thomas A. Lamphier, Major Horace A. Hickham, Major Gerald Brant and Major H. H. Arnold who gave specific instances of mishandling, and lack of support from the General Staff. Then Lieutenant Colonel Foulois, Lieut. Col. John Pagelow and ex-General Mitchell rounded out the forward movement by the Air Service. No better organized assault has ever been made on an intrenched position.

The one tactical weakness of the Air Service officers was their unwillingness to go further than their Chief in recommending changes. Major Hickham, and of course, ex-General Mitchell, were alone in their recommendations for a complete severance of aviation from the Army and Navy at this time. The unanimity of the criticism of the General Staff made a great impression on the country. So far as ex-General Mitchell's claims of repression by the War Department were concerned, the country learned the truth at last.

Another weakness of the position taken by some of the officers which must have been evident previous to the hearing, were brought out by questions by the Board. They were laid open to the criticism that they only wanted a separate corps so that they would get increased rank with its larger pay. This untrue claim was splendidly answered by Lieutenant George who told the Board that he was only desirous of having enough for his family if he could get a fair deal for air force development.

Colonel Mitchell Testifies

The high spot of the hearings was the appearance of ex-General Mitchell. With moving picture machines to the right, cameras to the left and entirely surrounded by newspaper reporters, the fiery fighter outmaneuvered the Air Board so completely that they surrendered after a gas attack lasting over four hours. The strategy was about as follows: The Board meets at 10:30 a. m. Anything said before one o'clock is broadcast in the afternoon papers. The afternoon session usually is given fully in the morning papers. Ex-General Mitchell used the morning session for his well known attack on the "vested interests" of the War and Navy Departments. He held back his "destructive criticism" even when urged by the Board to put it in. To get all his views into the record and to keep his "fireworks" for the papers of the second day he read his recommendations and several chapters of his book "Winged Defense." When it was too late (5:30 p. m.) to question him at length and when he had the Board tired out, he calmly suggested adjournment which was reluctantly granted.

The Board would have been glad to get through with him that day as it had many others it wanted to hear, but it was outguessed. It would have asked him to put his book in the record if it had not desired to give its chief witness the fullest opportunity to be heard.

Vigorous Cross-examination

On the next day, the ex-General gave the kind of vigorous testimony that the country expected from him, and no one who heard it will say that the throttle was not wide open. The cross-examination was as brilliant a fencing exhibition as could have been desired. After it was over the Board had heard the challenge: "This kind of stuff has got to stop."

The Navy at last found its tongue and after waiting five years the astonished world knows from naval officers themselves that all is not well in the Navy. This unexpected breaking over the traces of aviation officers of the Navy was the greatest surprise of the hearings. The Army had two leaders of rank. The Navy had none. Admiral Moffett had tried to express an opinion of his own but Secretary Wilbur instantly applied the gag.

Captain Westervelt, head of the Naval Aircraft Factory, who, though not a flier, has long been identified with naval aviation threw a bomb into the reactionary naval forces by presenting a well thought-out plan for a reorganization of the Bureau of Aeronautics. Coming from an officer of such wide experience, the Board appeared to be greatly impressed. Commanders Richardson and Paumonk and others confirmed the country's impression that there is something wrong with naval aviation.

Commander Rogers testimony was the most interesting of all. He wants the Army and Navy to be put under a single head, a supply department created, but aviation left where it is, to develop as it can by its own power. He took issue with ex-General Mitchell on his attacks on the PN9 flight and altogether gave the impression of a man who had thrown his muzzle overboard.

Notwithstanding the fixed ideas with which many of the Board started the hearings, it is evident that what has been told them has had its effect. No group of thoughtful men representing the President in a crisis such as he faces can do anything but subordinate individual opinions for the sake of the public good. If they do not, they will stand before the country as stubborn reactionaries. But force of public opinion will undoubtedly have its full effect and a report may be expected by December that will be both clarifying and progressive. Then Congress will take up the investigation and a decision will be reached. It is safe to predict that an independent air force of some kind will come out of it all eventually.

Mufflers

Editor, AVIATION:

You are naturally interested in advancing the use of airplanes for commercial purposes—both freight and passenger.

For the carrying of the latter, it is most surprising to me that no plane has been developed with effective mufflers. I am sure I should enjoy both riding in a plane the engine of which was effectively muffled and driving one myself but I do not take the slightest interest in traveling by plane now because I can see no pleasure in listening to the ear-splitting noise of the engines of the planes of today. I suppose people who are accustomed to living with and around planes get so used to the noise that they do not realize how intensely disagreeable it is to other people.

WALTER K. SHAW

The Mitchell Plan

So many different ideas of just what ex-Gen. Mitchell wants to have done with governmental aviation have been circulated that the following definite plan suggested by him to the President's Air Board is printed in full.—ED.

What will the plan I propose cost and how will it be created from what we have at the present time—in other words, briefly, how will it be handled?

Navy

The Air Service in the Navy can stay just the way it is. Its aeronautical personnel, except those who desire to transfer to the Air Force, can stay where they are. Their numbers, however, should be entirely regulated by the number of airplanes that the Navy actually carries to sea and operates. In addition to this, there should be sufficient reserves both of personnel and equipment.

On a war basis, for the airplane carriers, Saratoga and Lexington, an estimate of 150 planes, 75 each, can be made. Added to this, 50 planes might be carried by all other craft, or a total of 200 planes for the Navy. With a 50 per cent reserve, the whole would amount to 300 planes. The Navy should be made to show specifically what can be carried to sea on seacraft, as a basis for their organization.

All airships should be handled by the Air Force, carrying Army or Navy observers when necessary. The whole airship question must be completely overhauled and not rushed into quickly again without exact reasons for their use and development, and then using and developing them for what is provided.

Air Force Schools

All basic flying training and aerial combat instruction for naval aeronautical personnel should be conducted at Air Force Schools. When they fight in the air, they should fight under air force regulations. Their finishing training on the airplane carriers and other ships of the Navy should be carried out by the Navy and in any manner the Navy desires. In other words, it is distinctly up to the Navy itself to develop its aviation for work on the high seas. The Congress would judge what kind and how many airplanes, battleships or other vessels are required for the Navy in the general National Defense scheme.

The amount of aeronautical personnel necessary for these purposes would be about 10 officers in Naval Headquarters at Washington; about 230 flying officers and about 200 observers and about 10 non-navigating personnel for every airplane, or 2,000 men. There should be a reserve not on duty of about 50 per cent for the pilots and 50 per cent for the ground men. This, it would seem, is the maximum that our Navy will need, under any ordinary conditions for work at sea, according to the present system. War casualties in Naval aviation will not be high because they will not be engaged in constant combats with the enemy in an air war. They will only be in combat when hostile fleets come together, which in fact may be never, and if they do come together and the airplane carriers are sunk, there is no further use for them until other airplane carriers are obtained. In time of peace all Naval Air units should be at 50 per cent strength.

Satisfying the Navy

This system gives the Navy no field for objection whatever, as they would have as part of their own organization all aircraft that go to sea in ships; on the other hand, it would stop the Navy from trying to create a land air service, which is not only no business of theirs, but is directly contrary to the spirit of the present law of the United States, which specifies: "All aircraft not attached to fleets but operating from land bases should be handled by the Army or words to that effect." This, under the program suggested, could be changed to the Air Force instead of the Army, except for the Air Service which forms a part of the Army.

Army

The Army needs a certain Air Service for what might be termed its domestic economy—that is, for reconnoitering the ground in front of it, for regulating and adjusting the fire of its missile throwing weapons, such as cannon, howitzers, mortars and other firearms, and for maintaining liaison or keeping communication between its parts when all other means have failed.

An Air Unit for the Army

Let the Army determine just how many of these units they need and where they need them, then take the money for them out of their own appropriation, get their airplanes and equipment and use them. It will amount to about seven squadrons in the United States, one in Hawaii, one in Panama and one in the Philippines. Based on about 20 airplanes to the Squadron, this will make 200 airplanes; 50 per cent reserve would make 100 airplanes additional. There should be about 230 pilots and 230 observers for the Army and 10 ground men to the airplane, making a total of about 2,000 men. In time of peace all army air units in the United States should be at 50 per cent strength, abroad at 100 per cent.

This contemplates that there be four complete modern infantry divisions and one cavalry division in the United States. These divisions should be distributed so that two of them would be available in the area Chicago - Bangor, Maine - Chesapeake Bay, one in the middle states; one on the Pacific Coast, one on the Mexican frontier and one cavalry division on the Mexican frontier.

The Harbor Defense Artillery could use one squadron on the Atlantic and one on the Pacific. They could provide themselves with whatever balloons they needed and operate them.

Air Force

The cadre or frame on which the Air Force in the United States should be built should contemplate the use in a great war of a total of about 2,400 airplanes, two thirds of which should be pursuit and about one-third bombardment, in which some attack aviation is included. There should be 100 per cent reserves provided for.

This organization is necessary on account of what may be brought against us in the future. This contemplates that one brigade of 600 ships will cover the eastern part of the United States; one brigade of 600 ships will cover the western part of the United States, and one air division of 1200 ships will be stationed so that it can be shifted either way or both ways and even to our insular and outlying possessions instantly in case of necessity.

Supplementing this, there should be 17 flights of six airplanes each covering our Atlantic and Pacific Coast. This gives a patrol and surveillance element for every 200 miles. I wish that it be distinctly held in mind that the stationing and distribution of air units in case of war or even in peace does not involve the tremendous construction work that is necessary for land forces or water forces. Fields for operations can be prepared for occupancy within a few hours. Airplanes themselves in the future will be constructed so that they need little or no shelter under service conditions. The comparatively small number of men that handle them can be easily housed and taken care of in an efficient manner. With a proper system, unencumbered by useless red tape, the whole thing can be put into operation with great rapidity.

Plans for Mobilization

To begin with, we can make a distribution of units in accordance with what we have at the present time, pending the gradual development of the plan, as follows:

In case of war, each of the following 6 groups would provide for the formation of three additional groups, either at its own station or at other points in the area assigned to it. This would make a total of 24 groups, the number required for our Air Force of one division and two separate brigades.

Langley Field, eventually to be moved near Philadelphia: 1—Bombardment group.

Selfridge Field, near Detroit: 1—Pursuit Group.

Kelly Field, San Antonio, Tex., which draws on the area Ft. Worth, Dallas and Houston: 1—Attack Group.

Chanute Field, Champaign, Ill., eventually to be placed near Chicago, drawing on the Chicago area. 1—Bombardment group.

Mather Field, Sacramento, Calif., drawing on the San Francisco area and center of California: 1—Bombardment group.

Rockwell Field, San Diego, Calif., drawing on Los Angeles and Southern California area: 1—Pursuit Group.

New York (Mitchel Field): 1—Local Defense Group.

Air Force in Insular Possessions

Panama—Provision for 100 planes for local defense. Peace time, 50 per cent strength.

Hawaiian Islands—200 planes Air Force, 100 local defense. Peace time, 50 per cent strength.

Philippine Islands—no air force units.

Alaska—in time of Peace, 50 airplanes for development work, establishing airways and studying aeronautical needs of the country.

Schools

Langley Field Operation School, for training staff and commanding officers of air force units, for offensive work against hostile air forces, against hostile sea craft and against hostile land targets.

San Antonio, Tex.—Special schools of application for pursuit, attack and bombardment aviation, and for Air Force surveillance, observation and photographic work. A Primary Flying School for the training of officers from the Army and Navy and such Air Force officers as may be designated to take the course. The bulk of the primary training should be carried out at the stations of the major units.

The training of mechanics and inspectors should take place in factories where engines and aircraft are built; in civil institutions and in the engineering school maintained with the Engineering and Experimental Section at Dayton, Ohio.

The Reserve

All reserve peronnel should be attached permanently to some active unit, and required to fly an average of about four hours a month and to turn out for maneuvers with the units for a months' training each year.

All technical specialists carried on a staff basis not eligible to command, of course are not included in this.

Supply organization should consist of depots in the same locations as at present: Middletown, Pa., for the eastern part of the United States. Fairfield, Ohio, for the central states. San Antonio, Tex., for the Southwest. Temporarily, San Diego for the Pacific—to be eventually removed to Reno, Nev., at a later date. At Dayton, Ohio—The Engineering and Experimental Section of the Air Force.

Now, how would this system work out?

Peace

In time of peace, the Secretary of Air could handle all matters direct with the units, or in case he saw fit, he could create another organization to facilitate administration.

The active air units should handle the organization and training of all combat personnel. The schools the preparation of the personnel. The supply units, the organization and training of all specialists and supply personnel, the system for the production of aircraft and accessories, their transportation, storage and issue, and keeping up to date supply plans to be used in case of a great emergency, all to be prescribed and coordinated from the Headquarters at Washington, D. C.

War

Strategical.

In time of war, The Department of Air at Washington, D. C., should be charged with the preparation, supply and transportation to the tactical Air Force of all active Air Force elements, personnel and material. This organization should be permanent and fixed and be the matrix on which the Air Force is built.

It should be divided into four territorial departments, as follows: Eastern Department, Hqrs. Philadelphia; Central Department, Hqrs. Chicago; Western Department, Hqrs. Sacramento, Calif.; Southern Department, Hqrs. San Antonio, Tex.

Tactical

Air Force Tactical Headquarters—Beside the Commander of the armed forces of the United States and under him responsible for the tactical

employment of the Air Force and its use and coordination in any given operations. There should be intimate liaison between him and the Department of the Air. This plan will positively eliminate every bad feature that we had in the last war. Its only disturbing element would be in a lack of appreciation by the Department of Air for the wants of the Tactical Air Force. This, I am convinced, with officers trained in the Air Force, will not exist in a great emergency.

Costs

Recapitulation

Peace

	Planes	*Officers*	*Men*
NAVY	150	220	1,000
ARMY	150	250	1,000
Total Army and Navy	300	470	2,000
AIR FORCE			
Units in U. S.	600	1,200	6,000
New York Local Defense Unit	100	50	1,000
Airship Installations			
Lakehurst	—	50	500
Scott Field	—	50	500
Schools —			
Langley Field	—	50	500
San Antonio, Tex.	—	150	2,000
Exerimental Section, Dayton, Ohio	—	50	1,000
Supply Services	—	250	6,000
Insular Possessions—			
Panama Local Defense Unit	50	50	500
Hawaiian Islands	200	200	2,000
Alaska	50	100	500
Total Air Force	1,000	2,200	20,500
GRAND TOTAL	1,300	2,670	22,500

Assuming that $2,500 per man be taken as the cost of the Air Force per year, which is based on the estimate for the Lassiteer Army Project now known as Project No. 4, (incidentally the War Department Project is for 4,000 officers and 25,000 enlisted men) the total cost of the Military Air Service would be about $63,500,000. Add to this, $500,000 for the maintenance of the office of the Department of Air including the Under-Secretary of Air and the assistant Secretary of Air. It would give us about $64,000,000.

The Army estimate for Project No. 4 is about $75,000,000. I recommend that the Curry Bill with modifications to meet the recommendations contained above be used as the basis for legislation for a department of the Air.

Of the above, the Air Force itself in time of peace, exclusive of the Army and Navy, would be composed of 1000 service planes, 2200 officers and 20,500 men. These planes would be ready to take the offensive and fight and are not mere auxiliaries of some other force or paper descriptions of what planes might be. No numbers have been put down for training planes, as the proportionate number of one plane for 20 men is covered in the general estimate.

Now, let us take a look at what our entire National Defense scheme would be in case we put the general plan I have suggested into operation.

First, we would have a Secretary of National Defense, charged with coordinating the Army, Navy and Air Force. The Army, charged with the defense of land areas. The Navy, charged with the defense of sea areas. The Air Force, having jurisdiction over air areas. (The Army and Navy would have with them, as a permanent part of their own organization, the air services necessary for their own domestic use.)

These three forces, land, sea and air, would balance each other, something in the way our Federal, Legislative and Judicial Departments do in our Civil Government under the President. There could neither be a tie vote as between the Army and Navy or an interlocking directory against aviation.

Influences of the Scheme

The Air Force would oppose any spreading out of Naval activity on the land and would keep pushing them out to sea. It would stand for the cutting down of Navy yards, except where actually necessary for the maintenance of our Navies, whether they be surface or sub-surface. It would stand for the cutting down of Coast Artillery except in important places for the defense of cities that could be fired into. It would stand for a reasonable development of anti-aircraft artillery and appurtenances to be used as a part of the general scheme for defense against aircraft. It would stand for having an adequate army, a mobile army, a well equipped and well appointed army, which would absolutely insure holding of all land areas in which it operates.

Coordination of Services

To sum up its influence—it would be to insure the defensive integrity of the United States as a self contained unit.

Our country dominates in its ability to create air forces, in comparison with any other nation in the world. Both the Army and Navy should subscribe to this general scheme from a standpoint of service to the country, and the benefit of all. If they did not, the Secretary of National Defense would act as Judge in any discussions arising between them and coordinate the services. If this was impossible each branch could state its case with equal freedom.

Each service should freely criticize the other in every way they see fit, but such criticism should be constructive giving the reasons for it and their remedies. Under these conditions, there would be an accord in a comparatively short time—certainly in the minds of the people as to the best means of National Defense for our country.

It would hold one man, the Secretary of National Defense, responsible under the President of the National Defense of the whole country and under him, he could hold the under-secretaries definitely responsible for the Army, Navy and the Air.

The C.D. Air Express

A Promising Freight Service Plane with Liberty Engine

The C.D. air express plane was designed by Chas. H. Day, formerly chief engineer and designer of the Standard Aero Corp., in 1921 and partially constructed at that time by the Rogers Construction Co. at Gloucester City, N. J. When about 80 per cent completed the company for whom it was being built discontinued and the uncompleted plane was placed in storage. Early in 1925 it was purchased by Charles Dickinson of Chicago and recently completed for him by the Rogers Construction Co. The performance has not been entirely checked by flight tests but the preliminary flights indicate that it will perform in accordance with its design.

The primary object of the design was to obtain a reasonable performance in a plane carrying not less than 1800 lb. pay load and at the same time having a cubic capacity sufficient to carry very bulky packages. This first plane was constructed almost entirely of spruce and plywood and was so designed that at a later date the design could be easily altered to include all metal construction.

Specifications

Features of the plane include the extensive use of plywood throughout including the covering of all surfaces, the very large cross section of the fuselage allowing an unobstructed cargo space totalling 425 cu. ft. and the pilot's seat placed unusually high and well to the rear of the cargo. It is interesting to note that in preliminary flights the very large fuselage did not appear to materially affect the performance, and that the pilots stated that the vision was very good. The main characteristics of the C.D. plane are:

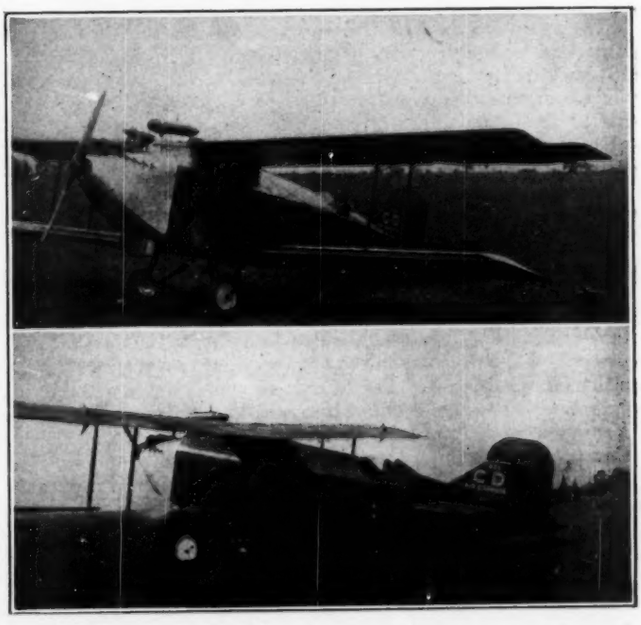
Main Dimensions:

Overall length	34 ft. 6 in.
Overall height	12 ft. 3 in.
Span of wings	52 ft.
Overall span	57 ft.
Chord	7 ft. 3 in.
Wing section	U.S.A. 27
Gap	7 ft. 3 in.
Incidence angle	0 deg.
Wheel tread	10 ft.
Stabilizer adjustment	4¼ deg.
Total wing area	749 sq. ft.
Main cargo compartment	300 cu. ft.
Auxiliary cargo compartment	125 cu. ft.

Construction:

Wings

The wings are constructed entirely of spruce and plywood and are regular two beam single bay design. Each main beam consists of two "I" sections with spruce flanges and plywood web arranged so the strut fittings are submerged and the wire pulls are from the neutral axis. The covering is plywood.



The C.D. Air Express. Note the aft position of the cockpit.

Fuselage:
The fuselage is entirely of spruce and plywood construction and allows unobstructed passage from the engine bulkhead to the pilot seat. The width at the center section is 5 ft. and the height 5 ft. at the sides and 7 ft. at the center.

Gas Tanks:
Four gas tanks having a combined capacity of 150 gal. are located under the floor of the fuselage at the center section. Feed to the carburetor is by a positive pump with a gravity tank for emergency.

Chassis:
Axles and struts are of steel tubing streamlined with wood. The axle is split, each axle being hinged to spacer tubes and the whole enclosed in a streamline form.

Cooling System:
The radiator is of rectangular shape and cartridge type construction. It is located below the fuselage and a header tank is provided above the motor.

Cargo space:
300 cu. ft. located in the first, second and third bays to the rear of the engine section. The center of these three bays is directly over the center of pressure thus giving equal distribution of the load. An additional 125 cu. ft. is available in the fourth bay. Loading doors (2) 2 ft. 6 in. x 3 ft. 6 in.

Weights and Performance

Weight of plane, empty	3,460 lb.
Fuel	960 lb.
Crew (2)	360 lb.
Disposable load	1,840 lb.
Gross weight	6,620 lb.
Engine	1 Liberty 12
Power loading	16 lb./hp.
Wing loading	8.9 lb./sq. ft.
Maximum speed	105 m.p.h.
Minimum speed	600 ft./min.
Climb	10,000 ft.
Service ceiling	48 m.p.h.

Colombia to Key West Air Route

Two 12-passenger seaplanes of the "Scadta" Co. have recently completed the first part of a trial flight from Barranquilla, Colombia, through Central America to Habana and Key West, according to reports from Colombia and Colon. The "Scadta" has been operating up the Magdalena River to Girardot and Neiva, a distance of about 860 mi., for the past three years, maintaining an efficient service and earning considerable profit.

The flight to Key West is from Barranquilla to Colon and Port Limon, Costa Rica, thence across the Nicaraguan Lakes to Managua, and up the west coast via Amapala and Acajutla to San Jose, Guatemala. The planes will then retrace their course over the lakes to the east coast, and from Morelos will fly to Habana and Key West.

This route, however, is for the purpose of survey and determination of landing places only. For the permanent service it is planned to have two separate sections, one from Barranquilla to San Jose and the other from Puerto Berrio to Key West. The trip across Guatemala for mails and passengers will be via the existing railway. The two sections of the air service will be separate, each having its own planes and flying personnel.

The operation of such a route would cut the time to Central American points from the United States anywhere from 3 to 18 days, owing to the fact that at present the only service is via cargo steamers which are concerned more with the carrying of fruits and other merchandise than with the expedition of mails and with passenger travel. The present trial flights will determine the routes to be followed and the amount of flying and landing equipment needed for the operation of the service.

Although organized and conducted at present by the personnel of the "Scadta" Co., the new service will be distinct from that concern. The Colombia-to-Florida service has been incorporated under the laws of the State of Delaware with the designation "Inter-American Airways, Inc." For the present the two companies will continue as distinct units, although the "Scadta" has offered to cooperate to the fullest extent with the new organization and to extend its services to Venezuela and Trinidad. It is the purpose of the organization to concentrate on the transportation of mails and express matter, since these have been found to be much more profitable than passenger traffic. The rates for passenger traffic will, therefore, be made sufficiently high to keep travel by that route down to a minimum on the initial flight. Mails for the Central American Republics were accepted in Colombia at the rate of 30 cents for each 15 grams weight (six-tenths of an ounce in international postage).

Encourage an Air Policy

Editor, AVIATION:—

Not long ago AVIATION gave notice that America was to have an Aviator Senator in the person of Col. Hiram Bingham of Connecticut. Possibly most of us did not take much notice of it at that time, but I think it is well worth the time of the "flying fraternity."

Already Mr. Bingham announces a campaign when Congress convenes in December, to greatly improve America's position in military and commercial aeronautics. Mr. Bingham has devoted a great deal of time and study to the aircraft situation and if anyone is a fair judge of the necessities of today, it is he. He, himself, is an experienced flier with nine years continual experience. So when a man of his standing and position brings forth a plan for the betterment of American aeronautics, I think the aviators and aviation enthusiasts should regard it carefully.

He outlined the eight most pressing needs of American aviation as follows, and he intends to do his utmost in Congress to see them met.

(1) Preparation of adequate airway maps on a large scale to facilitate air navigation over the most feasible routes.

(2) Encouragement of establishment and maintenance of emergency landing fields.

(3) Extension of aid toward support of adequate airports.

(4) Broadcasting of meteorological reports every hour by government radio.

(5) Government should guarantee to traveling and shipping public that our pilots are competent to fly and worthy of being trusted with mail, express, passengers and freight.

(6) Frequent inspection of airplanes by government agents to enable insurance companies to make adequate provision for reasonable insurance rates on aerial shipments.

(7) Government should provide lighthouses for all municipal and state airports, with public hangars, well equipped shops, competent mechanics, telephones, supplies of gas, oil, radio, etc.

(8) Establishment of Bureau of Air Navigation in the Department of Commerce.

All of these show study and careful selection and should receive our attention. If we favor these why not write to Senator Bingham, telling him so, and encouraging him in his new field? Better still, if we know who our Senators and Representatives are, write to them urging them to support his measures. Show them that the American public is back of them and that we realize the great need of this help by the government in the form of "indirect subsidy."

We all look forward to the dawn of Commercial Aviation. It is coming sure enough, but let us not pass up an opportunity like this to help along the cause and possibly hasten the day.

KENNETH H. HITCHCOCK

U. S. is 16, Japan 100

W. B. Shearer, experimental expert for the Navy during the World War, who has been investigating the naval conditions on the Pacific Coast has made public a report on aviation. The report places the United States Air Service as standing 16 per cent in size and effectiveness as compared with France and Japan, rated at 100 per cent each, and Great Britain, 58 per cent.

The Shearer report, referring to Col. William Mitchell's attack on the Army and Navy Air Services, says:

"Colonel Mitchell brings out a vital point in his charges, namely that an attack on this country would come via Alaska, where only 46 mi. of water separate it from Asia.

"Many will support Colonel Mitchell if he will confine his attack to where it belongs, to the political heads. He knows that both services, the Army and the Navy are forced to play politics.

"Congress knows the facts. The direct fault and remedy lies with the people who are not interested in the Army, the Navy or national defense. The popular slogan of "reduce taxes" has killed all sense of proportion."

Summarizing the situation on the Pacific, the report says:

"The fleet must be fully maintained, naval bases must be built and above all our air defense must be developed."

AIRPORTS AND AIRWAYS

Spokane, Wash.

By E. H. Partridge

Fifty-three planes were on the line for an air circus held in Spokane on Sunday, Sept. 20.

Due to opposition of the Spokane Ministerial Association twenty-five Army fliers, among them Capt. Lowell Smith, Lieut. Leslie Arnold and others, were forced to leave their ships on the ground. Through telegrams to Washington, D. C., the sky pilots of the pulpits secured an order from Acting Secretary of War Davis preventing Army pilots from participating in the events.

Three forestry patrol DeHavilands delighted a crowd of 25,000 with their stunting, Lieutenants Mamer, Priestly and Freng giving a fine demonstration. They staged the only DH race of the day, Lieutenant Priestley winning the event.

Lieut. Harold Neely, 116th National Guard, Spokane, won the Jennie race with Lieut. Ed Axberg of the same squadron taking second.

Planes from Vancouver, Wash., under command of Lieut. Oakley G. Kelly, won the formation flying event.

Lieutenants Axberg and Sherman of the Spokane squadron won the bomb dropping contest with a hit in dead center of the target.

The meet was marred by the death of Lieut. Schuyler D. Priestly, forest patrol flier, and Private John Avey, Jr., of the local guard unit. To complete a quota needed in a balloon sniping contest Lieutenant Priestley went from his DeHaviland and flew a Jennie. In making a turn with the lower powered machine with which he was not familiar he dropped into a tailspin at a height of 400 ft. and crashed into the ground. Both men in the plane were instantly killed.

Colonel Lahm, chief of Air Service on the Pacific Coast, said the meet would be repeated next year.

Lieutenants Priestley, Mamer and Freng have completed their year's work on forest patrol. Three DeHavilands were used and hundreds of flights were made over Washington, Idaho and Montana national forests.

Pilot E. J. Mimnaugh is using his Hisso-Standard in commercial work and has lined up many fall fair contracts and much moving picture work. During the Interstate Fair here he piloted his plane while Johnny Morrison, parachute man, did double and triple jumps from the ship.

Wellsburg, W. Va.

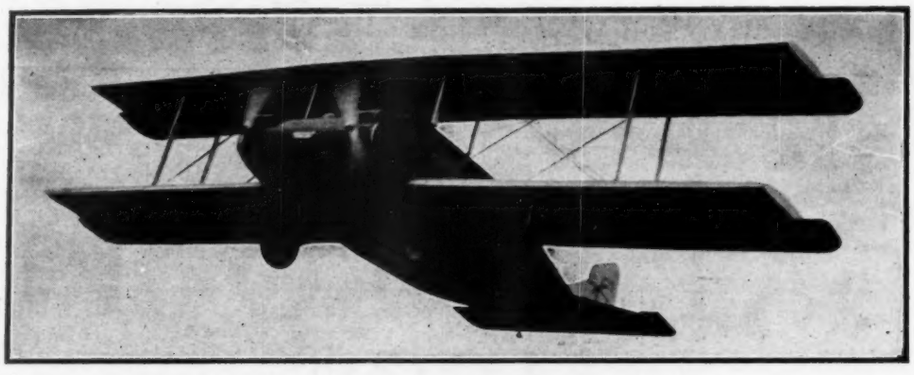
Dick Reeves of Wellsburg, W. Va., is now flying from a field about two miles south of Wellsburg, at Beech Bottom, formerly used by the Army Air Service during the war. Through AVIATION he secured the services of Okey Bevins, whom he says is a very efficient pilot and fine business associate. Reeves reports that they are making good at the new location.

Reeves holds the distinction of being the first man to operate in Brooke County, W. Va., an automobile truck and now an airplane.

Egypt to India Airway

The present military air-mail service which has been in operation for several years between Kantara, Egypt, and Bagdad, will be replaced by a civilian service that will be extended as far as Karachi, India, Consul E. Verne Richardson reports. On the new service one trip a week will be made each way, and at first a stop will be made for the night at Amman. It is hoped that night flying may be found practicable and this stop may then be eliminated. Passenger

HEAVY DUTY WINGS



THE RB2 TAKING OFF WITH 25 PASSENGERS

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carrying will probably be limited at first to the section between Kantara and Basra, although it is the intention to carry mail, passengers, and freight between Egypt and India as soon as the route has been thoroughly surveyed and developed.

The air mail between Kantara and Karachi will be carried for a small additional payment and will effect a saving of five days in delivery of letters from England to India. The ultimate plan of the British Government contemplates a through mail service from the United Kingdom to England, Burma, Singapore, and Australia.

A statement made some time ago in the House of Commons, was to the effect that a complete air base would be installed at Karachi. No details have been given as to the base at Kantara, except that a hydrogen-production plant would be installed there as well as at Karachi. The statement has been made that helium cannot be produced on a commercial basis anywhere except in the United States.

Preakness Landing Field, New Jersey

The following information has been received in regard to the landing field at Preakness, N. J.:—

"As the landing field which we are now using at Preakness, N. J., is not very easy to locate from the air, the following information in regard to that field is furnished: 'The landing field lies about six miles northwest of Paterson, and is in the angle of two roads, one of which is concrete. At the intersection of these roads is a new two-story brick school house and about a half mile down the edge of the field from the intersection, is a small brick church with a white tower. The Passaic River makes a loop around the north side of Paterson and the field lies on a line drawn almost due west from the most northerly point of this loop.

'To expedite any service which may be needed, it is requested that the pilots of planes going to this field send a wire giving their expected time of arrival to the Wright Aeronautical Corp., Paterson, N. J.' "

When the work on the regular Wright Aeronautical Corp. landing field at Hasbrouck, N. J., is completed, a memorandum to aviators will be sent out to that effect.

Commercial Aviation Progresses in Denmark

Establishment of a domestic commercial flying route to connect Copenhagen with the mainland of Denmark has just been announced, Consul Ellis A. Johnson, Copenhagen, advises the Department of Commerce.

It is planned to carry both passengers and mail on the route.

Increasing interest in commercial aviation in Denmark is indicated by the many experiments now in progress. A significant development in local aviation was indicated by the interest shown in the recent trial mail flights undertaken by the Danish Air Transportation Company. At the request of the Danish Post Office Department, trial flights were made between Copenhagen and the island of Bornholm located in the southernmost part of the Baltic Sea. The round trip, which was made in three hours, was successful in every way, according to the Post Office officials, and lessened the usual steamer time of mail transportation by approximately twelve hours.

Belgium to Congo Flight

Lieutenant Thieffry, the Belgian war ace, left Brussels, Belgium, on Feb. 12, last, for a 5000 mi. flight to Leopoldville, Belgian Congo. He is flying a Handley Page transport plane fitted with a 360 hp. Rolls Royce engine in the nose of the fuselage and two 240 hp. Siddeley Puma engines in wing nacelles. He will roughly follow the course the two four-engined Bleriot planes piloted by Colonel Vuillemin and Lieutenant Pelletier Doisy flew to the French Sudan.

AIRPLANES FOR SALE

We have 333 airplanes that we must sell this year including Standards, Jennies, Canucks, Orioles, D.H.'s, Spads, T.M. Scouts and others. We have a large number of Standards, Jennies and Canucks set up, test flown ready for immediate fly away delivery. Come and take your pick.

NEW STANDARD J-1 AIRPLANES with guaranteed overhauled Hispano-Suiza motors, 150 H.P.	$1500.00
NEW STANDARD J-1 AIRPLANES with new OXX6 motors	1300.00
NEW STANDARD J-1 AIRPLANES with Government overhauled OXX6 motors	1100.00
NEW STANDARD J-1 AIRPLANES with new OX5 motors	1000.00
NEW STANDARD J-1 AIRPLANES with Government overhauled OX5 motors	900.00
NEW STANDARD J-1 AIRPLANES without motor	650.00

These airplanes come complete with tools and instruments and the front seat is built so as to accommodate two passengers. These airplanes have been reconstructed and new longerons, new controls, new wires, new struts, new fittings, new instruments were installed where needed. ⅓ deposit will hold any of the above airplanes for spring delivery, storage and insurance free.

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ROOM AND BOARD NEAR FIELD AT $10.00 PER WEEK

The splendid response to this special offer (originally limited to June, July and August) permits us to extend it until further notice.

We will guarantee to teach a student to fly and successfully operate an airplane by himself, regardless of the number of flying hours required, and further, to furnish an airplane, free of charge, for the period of one hour for practice flights.

The flying school of the Robertson Aircraft Corporation is one of the oldest and best known in the United States. All of the instructors are ex-army aviators with wide experience and the equipment is the best that money can buy. The flying field is approximately six miles from the city of St. Louis and is easily accessible by railroad, street car and hard surfaced roads. It is the largest and best privately owned field in the country and the International Air Races of 1923 were held there.

Our course includes thorough flying training as well as complete instruction in the over-haul, care and maintenance of both the airplane and motor. The time within which one can learn to fly, varies with the individual; eight to ten hours of dual instruction, stretched over a period of ten days to two weeks should complete the most stubborn case, and from then on, the refinements of the art can be gained only from experience. Commercial aviation is a rapidly growing industry. Don't delay! Enroll now!

ROBERTSON AIRCRAFT CORPORATION

ST. LOUIS FLYING FIELD, ANGLUM, MO.

Gates' Does Good Promotion Work

That very fine promotion and development work is being carried on daily by the Gates' Flying Circus and Aviation Co., is very evident from the following brief description of the company's activities since its original inception no less than fourteen years ago. —EDITOR.

The history of the Gates Flying Circus dates back to the pioneer days of 1911, when Ivan R. Gates, then in San Francisco, learned that Didier Masson, the famous French pilot, was anxious to visit America. Mr. Gates communicated with Masson, and the result of their negotiations was the arrival of the French flier with his mechanic, Jules Brule, of the Societe des Gnome Aviation Company of Paris. With them they brought a primitive biplane of scant horsepower.

Out on the Cavalry Flat of the Presidio in San Francisco this little company gave its first exhibition. Startled indeed was the crowd as the "daring pilot" sent the machine through a few stunts.

They went on the road; Gates, Masson, the mechanic and the little plane and thousands of Americans had their first view of an airplane during that tour.

Ten years later, with Mr. Pangborn as his partner, Mr. Gates brought the flying circus back to its home in triumph and a throng estimated at from 75,000 to 100,000 persons attended the show at the Presidio.

* * *

Since that modest beginning back in 1911, the Gates Flying Circus has flown in 41 states, in 1042 cities, has staged 1836 exhibitions, and carried 100,228 passengers.

They have flown across the Sierra Nevadas, over the Rocky Mountains, down on the broad plains of Texas; their wheels have marked the hot sands of Arizona; darkies in the cotton fields of the far South have gazed open-mouthed upward at them; up through the tobacco belt of Virginia and the Carolinas and now they have invaded the East—Pennsylvania, New Jersey and New York.

The organization has presented sixteen paid-admission exhibitions for the Army Air Service. One of the most notable of the recent events was staged at Bolling Field, Washington, D. C., about two months ago, when officers of Bolling Field said the largest crowd in the history of the Field attended. The entire program was presented by the Gates Flyers, with the exception of one formation flight and a smoke screen by Martin bombers from Phillips Field. The smoke screen was dropped with a view to screening the stunts from persons outside the field enclosure, who had not paid admission.

* * *

During the long, winding trip across the country Chief Pilot Pangborn established a new transcontinental flight record. But it was one of slow speed. On July 2, 1922, he last flew over the Pacific Ocean at San Francisco; on July 17, 1925, more than three years later, he swung out over the Atlantic Ocean at Norfolk, Va.

Scores of new landing fields have been established through the Gates Flying Circus organization. Cities that had talked of building fields have been encouraged into action by the exhibitions and the resultant apparent interest of their citizens. In several instances, the fields actually were built under the direction of the advance men of the organization.

Spartenburg, S. C., provides an example. The Gates Flying Circus was under contract to present a series of exhibitions for a newspaper there. Search was instituted for a landing field but none suitable could be found.

Into a conference were called representatives of the newspaper, of the Chamber of Commerce, of the city, the county and several large contracting firms. The problem was explained to them and the need for a field was apparent. It was a civic problem.

"Show us how to build the field and we'll build it," said the conferees to the Gates advance men. Early the next morning, graders, drags, harrows, rollers, laborers were assembled

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H. P. Smith Secretary-Treasurer

at the site selected, a large tract owned by a railroad and to which free lease had been given the city. The equipment and labor likewise were donated. Runways were laid out and rapidly whipped into shape. In three days the field was ready and it now remains; the city has invited all aviators to use it.

Of course, an enormous amount of newspaper publicty attends the exhibitions of the fliers and at every opportunity arguments are publicly presented for the speedy establishment of adequate landing fields.

At the present time the Gates Flyers are using five Hisso-Standards, all of which were entered in the "On to New York" race. One entrant was from Fort Worth, Tex.

The present personnel of the company includes the following: Ivan R. Gates, general manager; Clyde E. "Upsidedown" Pangborn, chief pilot; Pilots Jack Asheraft, Eddie Brooks, Freddie Lund and Eddie Bond. Headquarters at the present time are at Room 735, 17 Battery Place, New York City.

Philadelphia News

The fond eyes of love and this business of bringing a speeding airplane down from an altitude of over a mile to land on a mark do not mix very well. This was the conclusion to which Ariel C. Gunther of Bryn Athyn, Pa., was forced on Sept. 23 when he attempted to pass his qualifying "air" examination to obtain the license of a pilot. He, with a number of others, is a member of the Pitcairn Flying School at the flying field near Bryn Athyn.

He brought the nose up and flattened out for the landing, but his calculation was bad, for the machine trundled several hundred feet beyond the mark. He was disqualified by common consent of both C. T. Ludington, governor of the National Aeronautical Association and his observer, Lieut. James G. Ray, operations manager of the field.

Gunther crawled somewhat shamefacedly out of the cockpit, returned to Ludington and asked for another chance. Again he circled the field, again he volplaned down "dead-sticked" and made a perfect landing, amid the plaudits of his companions.

The other amateur pilots who passed their qualifying tests were Sterling R. Smith, Bryn Athyn; John P. Lukens, Willow Grove; C. T. Hodgins, Glenside; A. R. Jacobs, Germantown, and C. F. Esslinger, Logan.

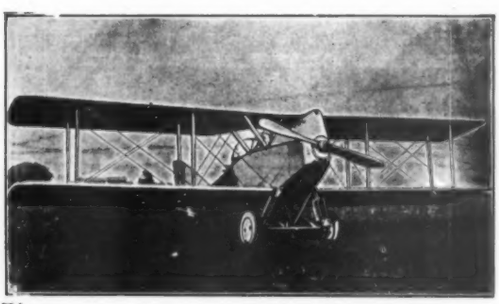
Long View Field, Pennsylvania

The Pennsylvania Aero Service reports to us a new landing field of thirty acres some twenty miles east of Pittsburg at a point just west of where the mountains start. The exact location of the field is 8 mi. east of Greensburg, Pa., or 1 mi. west of Youngstown, Pa., on the Lincoln Highway. The field has a circle of 150 ft. diameter in the center. There is a hangar for three ships but at the present time this is fully occupied as there are five ships on the field, three OX5 Jennies, a Canuck and Standard. There is a gasoline station at the corner of the field whose roof is in the form of a perfect cross. C. B. Carroll and Joe Maloy of Scottdale, Pa., have the interest in the field. The field was opened on June 1, several students have had instruction, passengers have been carried and a number of cross country fliers have stopped off at the field.

Swedish Air Traffic, 1924

Regular air services were operated in Sweden for the first time during 1924. All of these were on a summer schedule, and included services between Malmo and Hamburg, Stockholm and Helsingfors, and Malmo and Copenhagen. Although regular schedules were followed on all three lines, most of the traffic was on the Copenhagen route, over which 246 trips were made and 2,528 passengers carried.

The fact that on Jan. 1, 1925, there were 293 private individuals in Sweden in possession of licenses for operation of airplanes is an indication of the interest that has been aroused in civilian air services.



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U. S. ARMY AIR SERVICE

Denver Reservists Back Unified Air Service

There is probably no group of men in this country who follow the development of the Air Service with more thoughtful and intelligent interest than the Air Service Reserve officers. The following resolutions from the Association of Air Service Reserve Officers of the 103rd Division and Non-Divisional Group of Denver, Col., were sent to us with the hope that it might help to bring out the opinions of other similar groups of Reserve officers throughout the country.

* * *

In consideration of the momentous Air Service question now before the country, we, the Air Service Reserve Officers of Denver Colo., in conference assembled, do hereby RESOLVE:

— FIRST —

THAT: We desire a unified Air Service.

— SECOND —

THAT: We desire a consolidation of all United States Government elements of aircraft experimentation, production, supply and training.

— THIRD —

THAT: We desire that the administration of all aircraft matters be placed directly under the control of qualified aircraft pilots.

THAT: We hereby give our unanimous approval to these resolutions as attested hereto by the signatures of the officers of our association and are duly recorded in the minutes of our meeting of September twenty-second, one thousand nine hundred and twenty-five.

CECIL G. SELLERS
Captain, Air Service Reserve,
PRESIDENT.

CECIL H. BRADDICK
1st Lieut., Air Service Reserve,
SECRETARY.

Army Air Orders

Following officers A. S. Res., to active duty from places indicated to McCook Field, reverting to inactive status Sept. 13: Majors Monroe Brett, Flushing, N. Y.; Clifford Burnham Griswold, East Orange; Capts. Thomas Darlington Cope, Wayne, Pa.; William Montgomery Reading, Washington; James Russell Walsh, Astoria, and Sec. Lieut. Ronald McKean Hazen, Minneapolis.

First Lieut. Francis T. Murphy, A.S. Res., Little Rock, and Sec. Lieut. Archie Dean Hunter, A.S. Res., Santa Ana, to active duty Kelly Field, reverting to inactive status Sept. 13.

Following officers, A.S. Res., at active duty Chanute Field, from places indicated, reverting to inactive status: Capt. Robert Edmonston Ellis, Dayton; 1st Lieut. Charles Irish Preston, Davenport; Sec. Lieuts. Paul Bauer, Dayton; Donovan Reese Bishop, Fairfield; Vern Cecil Davison, Lincoln; Jesse Everett Eshbaugh, Dayton; Fred William Heckert, Dayton; Wolford Eugene Lewis, Kansas City, and Lester Wayne Trees, Dayton.

Capt. Leo James Griffin, A.S. Res., Atlantic, Mass., and First Lieut. George Varley Straker, New York City, to active duty Mitchel Field, reverting to inactive status Sept. 13.

Spec. Or. 120, amended to relieve Major Barton K. Yount from duty and assignment, McCook Field, and to order him to proceed to New York City and thence to Paris, for duty as assistant military attaché.

First Lieut. John M. McCulloch, A.S., assigned to duty

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The Aristocrat of the Air

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Aero Club of Pittsburgh group of Reserve Aviators who completed a two weeks flying course at Langley Field, Vt., July 18. Sitting, L. to R.—1st Lieut. Stanley H. Weaver, 2nd Lieutenants Hamill and William J. Snyder, 1st Lieuts. Arthur D. Swift, Howard B. Pearce, (Pres. Aero Club), Anthony DePodesta, deceased, John C. Kelso; 2nd Lieut. Stewart F. Stilwell, 1st Lieut. John R. Wright, 2nd Lieutenant Mumma. Standing, L. to R.—2nd Lieuts. Kenneth F. Lovejoy and Wm. J. Austin, (3rd Vice Pres. Aero Club); 1st Lieut. John A. Thompson, Capt. Ewing W. Day, Jr., 1st Lieut. Louis T. Barry, (Treas. Aero Club), 2nd Lieut. Robert C. Wentz, 1st Lieut. John J. Feery, 2nd Lieut. Richard Earle; 1st Lieutenants Bushyager, Wood and Thomas.

Middletown Air Int. Dep., upon completion of tour of foreign service.

First Lieut. Alvan C. Kincaid, A.S., Maxwell Field, to Kelly Field.

Following officers A.S. Res. to active duty Brooks Field, from places indicated, reverting to inactive status Dec. 27: Sec. Lieuts. John Louis Hosch, Cambridge; Frank Dunne Klein, Roslindale, Mass.; Charles Arthur Ross, Watertown, Mass.; Horace Emil Weihmiller, Dayton.

Sec. Lieut. Edson William Berlin, A.S. Res., Tulsa, to active duty Brooks Field, reverting to inactive status Dec. 30.

Sec. Lieuts. Charles Onno Garrels, Berkeley; Charles Bernard Overacker, jr., Niles, Calif, and Harlan Yager Smith, Santa Monica, to active duty Brooks Field, reverting to inactive status Dec. 28.

Sec. Lieut. Harry Watt Fowler, A.S. Res., San Antonio, to active duty Kelly Field, reverting to inactive status Sept. 14.

History of Aeronautics

BY

E. C. VIVIAN

We have just a few copies left of the above.

The retail price is $3.00, with the first ten new or renewal orders, $2.50 with subscription. This work is divided into four parts: The Evolution of The Aeroplane; Progress in Design; Aerostatics; Engine Development. There are 521 pages with numerous illustrations of photographs and diagrams.

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First Lt. Franklin O. Carroll, A.S., Kelly Field, to McCook Field.

Sec. Lt. Victor Emmanuel Showalter, A.S. Res., Dayton, to active duty Scott Field, reverting to inactive status Oct. 18.

First Lt. Hubert Elmore Wilson, A.S. Res., Chicago, to active duty Chanute Field, reverting to inactive status Oct. 19.

Sec. Lt. Donovan Reese Berlin, A.S. Res., Dayton, to active duty Chanute Field, reverting to inactive status Oct. 18.

Following A.S. Res. Officers, to active duty Washington, from places indicated, reverting to inactive status Oct. 18: Lt. Col. Harry Clay Fry, Jr., Pittsburgh, Maj. John Hawley Larned, Phila., Capt. Theodore Barthen, River Edge, N. J., Capt. Edgar Raymond Theiss, Chicago, 1st Lt. William Frederick Gerhardt, Dayton, 1st Lt. Jesse Stuart Joseph, New York City, 1st Lt. Glenn Robert Lassiter, Anderson, S. C., 1st Lt. Lester Raymond MacDonough, New Haven, 1st Lt. Strafford Denman Mills, Westfield.

Capt. Charles Otto Dost, Capt. Arthur William Duckstein and Sec. Lt John Joseph Kelly, A. S. Res., New York City, to active duty Mitchel Field, reverting to inactive status Oct. 19.

Spec. Or. 167, assigning First Lt. Frederic B. Wieners, A.S., to duty Kelly Field, amended to assign Lieutenant Wieners to San Antonio.

Maj. Harold A. Strauss, A.S., designated assistant commandant A.S. Bal. & Airs. Sch., Scott Field.

Harvey H. Holland, A.S., relieved as assistant commandant A.S. Bal. & Airs. Sch., Scott Field.

Maj. Harold Geiger, A.S., relieved assignment and duty Langley Field and will report to Com. A.S. Tact. Sch. for instruction.

Following officers A.S. Res., to active duty Selfridge Field, from places indicated, reverting to inactive status March 31, 1926: 1st Lts. Thomas Ash, Jr., New York City, Clarence Shortridge, Irvine, Neb. and Sec. Lt. Van Hampton Burgin, Atlanta.

First Lt. Paul Evert, A.S., Scott Field and Langley Field, to Chanute Field.

Following officers, A.S. to duty at stations indicated: Capt. Richard J. Kirkpatrick, Langley Field, First Lt. Emil C. Kiel, Kelly Field, First Lt. Orville L. Stephens, Mitchel Field and First Lt. Ned Schramm, San Diego.

Following officers, A.S., to duty at stations indicated: First Lts. Kellogg Sloan, Kelly Field, John E. Upston, Bolling Field, Levi L. Beery, Kelly Field, Warren R. Carter, Brooks Field.

Following officers A.S. to proceed to New York City, from places indicated and sail Jan. 6 for Hawaiian Dept.: Sec. Lts. Homer W. Ferguson, Langley Field, Clyde K. Rich, Selfridge Field, John A. Austin, Aberdeen Prov. Ground.

First Lt. Bernard T. Castor, A.S., Rockwell Field, to San Francisco, sailing Jan. 26 for Hawaiian Dept.

First Lt. James E. Parker, A.S., Indianapolis, to New York City, sailing Jan. 21 for Canal Zone.

Following officers A.S. to New York City, from places indicated, sailing Jan. 21 for Canal Zone: First Lts. Clarence H. Welch, Aberdeen Proving Ground and Don L. Hutchins, Kelly Field and Sec. Lt. Robert W. Douglas, Selfridge Field.

Sec. Lt. Frank Hawhurst Jerdone, A.S. Res., Washington, to active duty, Langley Field, reverting to inactive status March 31.

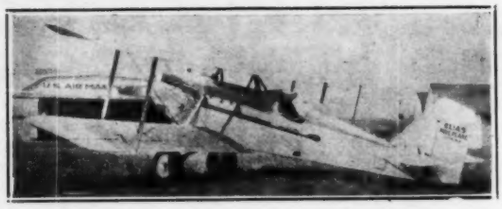
Spec. Or. 108 relieving First Lt. George E. Hodge, A.S., from assignment and duty Langley Field, amended to order Lieutenant Hodge to report to Com. A.S. Tact. Sch.

First Lt. Langhorne W. Motley, A.S., Fort Hayes, to Langley Field.

Major Harmon Takes Command of 2nd Bombardment Group

Major Hugh J. Knerr was relieved from further duty as temporary commander of the 2nd Bombardment Group at Langley Field, Va., on Sept. 17, and was succeeded by Major M. F. Harmon, who recently reported for duty in connection with the bombing and gunnery competition to be held at Langley Field during October. Major and Mrs. Harmon are quartered temporarily in Mabry Hall, the Lighter-than-Air Section of the Post.

ELIAS



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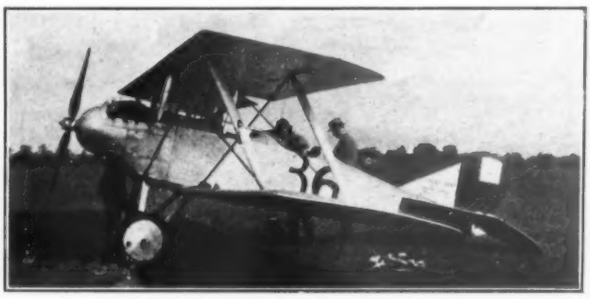

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Unique Hose Line

Using bamboo wood as a gasoline hose line is a rather unique experiment, but it demonstrates the truth of the old saying that necessity is the mother of invention.

The Third Pursuit Squadron, stationed at Clark Field, Pampagna, P. I., recently participated in some maneuvers at San Jose, Mindoro, during the course of which the pilot of one of the nine participating MB3A airplanes, Lieut. B. W. Chidlaw, had a forced landing in the wilds of Mindoro caused by a broken hose connection in the gasoline line. This mishap proved a source of no particular worry to the resourceful Engineering Officer of the flight, 2nd Lieut. O. R. Cook. Discovering some bamboo wood in the immediate vicinity of where the plane was set down, he used it in lieu of hose, and Lieutenant Chidlaw was enabled to take off and complete the rest of the flight to San Jose.

U. S. NAVAL AVIATION

Fort Hamilton Naval Reserve

On Sept. 6 the last remaining N9 of the New York Naval Reserve was crashed to a complete wreck. It was being piloted by Eugene S. Rhoads, Police Reserve, N. Y. The station was thus left without a plane but two days later a UO1 was put into commission. The officers at the station report that it is a delightful plane to fly especially after wrestling with decrepit N9s. From Aug. 22 to Sept. 19 over 50 hr. of flying was done. There are two officers and eight enlisted men attached to the station. Due to the scarcity of flying equipment there has been only one Reserve Student Officer on active duty during the course of the month.

New Aircraft Carrier Launched

The new aircraft carrier Lexington sister craft to the Saratoga was launched at Quincy, Mass. on Oct. 3.

Dedicating the aircraft carrier Lexington as "an implement for the maintenance of free government," Secretary Wilbur of the Navy Department, at the launching ceremonies declared it was a "witness bearing silent testimony to the belief of the men and officers of the American Navy in the use of aircraft for national defense."

"It is the witness bearing testimony," the Secretary said, "that Congress believes in the development of aircraft as a means of national defense. The liberal appropriations for the construction of the Lexington and the Saratoga, with their equipment, passing Congress by unanimous consent, are irrefutable proof that every member in the legislative halls of Congress believes that the navy needs aircraft in the performance of its functions.

"Every blow of the hammer used in her construction gives vocal protest to the unthinking declaration that the American Navy is hidebound with conservatism and immovably anchored by barnacle-incrusted chains to the things of the past."

The ship was christened by Mrs. Theodore Douglas Robinson, wife of the Assistant Secretary of the Navy. Others in the official party were Rear Admiral William A. Moffett, Chief of the Bureau of Aeronautics; Rear Admiral J. D. Beuret, Chief of the Bureau of Construction and Repair, and Rear Admiral Louis R. De Steiguer, commandant of the Boston Navy Yard.

Navy Air Orders

Capt. Joseph M. Reeves det. Bu. Aero. to Comdr. Aircf. Sqds., Battle Flt.

Lt. Comdr. Thales S. Boyd desp. Ors. 26 Aug. revoked, to continue Naval Air Sta., Lakehurst.

Lt. Fred C. Dickey det. Nav. Air Sta., Pensacola, to Aircraft Sqdns., Sctg. Flt., ors. 28 July to Aircf. Sqdns., Battle Flt. revoked.

Lt. Harold B. Sallads to Aircf. Sqdns., Sctg. Flt., orders to U.S.S. Richmond revoked.

Lt. William D. Thomas det. Aircf. Sqdns., Sctg. Flt., to U.S.S Richmond.

Cmdr. John Rodgers det. Aircf. Sqdns., Battle Flt., to Bu. Aeronautics, Navy Dept.

PUBLISHER'S NEWS LETTER

The swing of public opinion to the airman's point of view seems to have acquired a momentum that will carry it to its desired goal. Every event seems to add greater force to the claims of aviation that it has an independent role to play and will not be held back by the bureaucrats who fear its growth. The resistance of the so called "vested interests" in the older services has been fully demonstrated to the public and General Mitchell summed up the whole situation when he made the assertion, "This kind of stuff has got to stop."

* * * *

It was not a slip when we used the "General" when referring to the champion of aviation. It is our feeling that a man who has earned his rank in war and who has commanded the largest air force ever used in battle should not lose his rank, in aviation circles at least, through demotion by military opponents of air progress. It may be suggested that in the aeronautical world he continue to be known as General Mitchell as a compliment to his fearless single-handed attack on the machine gun nests of anti-aircraft forces.

* * * *

The Shenandoah inquiry continues to bear out the ideas expressed in the editorial printed in AVIATION after the wreck. When it was urged to "take Aircraft out of Politics," it was known that if the truth came out that the public would be shocked by the facts, but so far as we can learn, it was the first place that the real blame for the wreck was placed on the political aspect of the trip. Even now it is not believed that the whole truth has come out. Perhaps it never will for fear of alienating the friendship of certain political leaders that the Navy wanted to please by letting them use the Shenandoah as an adjunct to the State Fairs. There is no force so compelling as political influence and nothing so highly regarded in military and naval circles. "Log rolling" has long been a favorite pastime in Washington. When a favor can be done by the services for a political leader, it can be capitalized when appropriations are being made.

Perhaps if all the requests from powerful political quarters were made public, it might shift some of the blame from the Navy's shoulders to the real directors of propaganda. When an officer is asked to do a favor to a politician and is able to do it, even at the risk of government property, it is a natural desire to please that individual. In the case of the Shenandoah, the visit to the state fairs went wrong and consequently it is only natural that the officers are getting all the blame. It is our opinion that the pressure which was placed on the Navy for the propaganda trip should also assume its portion of the blame. This point seems to have been overlooked in all the discussions over the accident and is made here so that the air people can think it over. Perhaps, later when this phase of the trip comes out, it may justify the impression.

* * * *

National Defense as a political issue looms up as a possible battleground of the parties. No clear understanding of what is happening in Washington can be secured without keeping this fact always in mind. The President's Air Board will undertake to formulate an Administration policy that can withstand political attack and satisfy the uncertainty of the public mind. If this is not done, the whole subject is certain to be used in a political way by partisans. For this reason, more constructive suggestions may be expected than might be expected from men with such fixed views.

* * * *

The next event of major importance on the schedule of aeronautical events will be the President's Message transmitting the Air Board report. While it may appear to be some far distant time to December first, it will come quickly and from that date the really important happenings will take place. If the President is as astute as he has proved himself to be in other crises, he may be relied on to give the air problem a clear presentation that will set the wheels in motion for movement in the right direction. Such a clarification will give the country an assurance that it surely needs at this time.

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, of AVIATION published weekly at Highland, New York, for October 1, 1925.

State of New York } ss.
County of New York }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared George Newbold, who, having been duly sworn according to law, deposes and says that he is the Business Manager of AVIATION and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, Gardner Publishing Company, Inc., Highland, New York; Editor, W. Laurence LePage, 225 Fourth Avenue, New York City; Managing Editor, none; Business Manager, George Newbold, 225 Fourth Avenue, New York City.

2. That the owner is: (If the publication is owned by an individual his name and address, or if owned by more than one individual the name and address of each, should be given below; if the publication is owned by a corporation the name of the corporation and the names and addresses of the stockholders owning or holding one per cent or more of the total amount of stock should be given.)

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George Newbold, Business Manager.

Sworn to and subscribed before me this 29th day of September 1925.

[Seal.] GUSTAVE GUTH.

(My commission expires March 30, 1926.)

INDEX TO ADVERTISERS

A

Advance Aircraft Co. 518
Aero Supply Mfg. Co. 512
Aircraft Development Co. 476
Aircraft Service Directory 520 - 521
Aircraft Supply Co. 521
Aircraft Year Book 514
Alexander Aircraft Co. 518
Anderson Aircraft Manufacturing Co. 520

B

Balyeat-Jenks Co. 509
Bridge, Robert A. 520
Buhl-Verville Aircraft Co. 507

C

Carpenter, Ford A. 520
Classified Advertising 516
Crawford Airplane Co. 520
Curtiss Aeroplane & Motor Corp. 474

D

Decatur Aircraft Co. 521

E

Elias & Bro., Inc., G. 512

G

Gibbons Co., The 478
Goodyear Tire & Rubber Co. 477
Guggenheim School of Aeronautics, Daniel 521

H

Hamilton Aero Mfg. Co. 515 - 520
Haskelite Mfg. Co. 521
Huff Daland Aero Corp. 520

J

Johnson Motor Products Co. 521

L

Lamblin, Etablissements 508
Loening Aeronautical Eng. Corp. 508
Ludington Exhibition Co., Inc. 521

M

Martin, Glenn L., Co., The 475
Monumental Aircraft Co. 520

N

Northrop, Marvin A. 520

O

Ostergaard Aircraft Works 520

P

Perry-Austen Mfg. Co. 518
Pioneer Instrument Co. 523 - 520
Pratt & Whitney Aircraft Co. 517

R

Reisner Aero Service Co., Inc. 515
Remington-Burnelli Aircraft Corpn. 505
Robertson Aircraft Corporation 506

S

San Antonio Aviation & Motor School 520
Scintilla Magneto Corp. 479
Sikorsky Co., The 512
Southern Airways, Inc. 520
Spalding Construction Co. 521
Summerill Tubing Co. 510
Swallow Airplane Mfg. Co., The 509

T

Titannine, Inc. 518

W

Wallace Aero Co. 521
Warner, Edward P. 521
Where to Fly 519
Wood Elastic Web Co., J. W. 518
Woodson Engineering Co. 520
Wright Aeronautical Corp. 524

Y

Yackey Aircraft Co. 512 - 521

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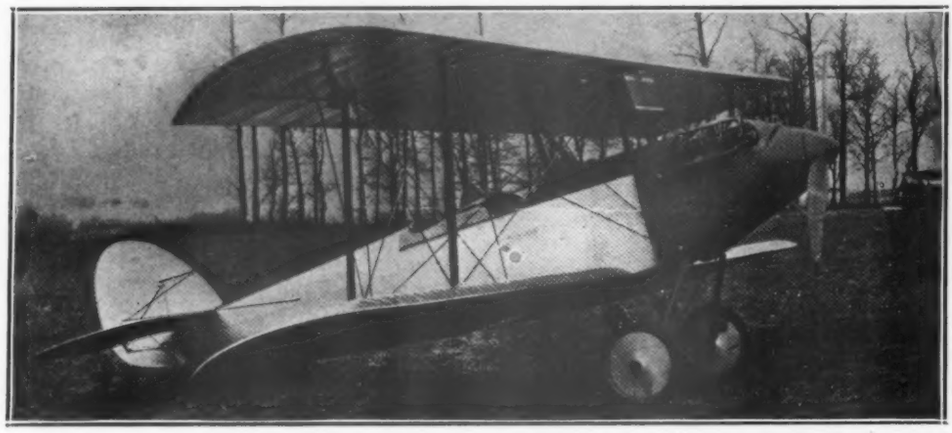

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SUPPLIES—OX5 PROPELLERS, $5.75. Canuck LG Struts, $1.50. Set (8) OX5 Spark plugs, $2. Aviation engine, 15 hp, only $35. Pair 26x4 Wheels with casings and tubes, little used, $19. AVRO Wings, uncovered, $50. Pair 4"x8"x20" Radiators, only $25. OX5, CANUCK, STANDARD, JN4D, etc. Parts. Supplies price list ready. Blueprints giving construction details for building propeller boat attachment and also high speed AERODRIVE Sleds, Sets, $2. Wanted new or used OX5 motors—also all kinds Air-cooled motors.
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AEROPLANE MOTORS—Gnome 160 H.P. new complete rotary 9 cylinder 292 pounds suitable aeroplanes, motor boats, ice sleds, wind wagons, F.O.B. Dayton, O. $25.00. Le Rhone 120 H.P. (type used for making radial engines) complete $100.00. Hispano 150 H.P. complete boxed crated F.O.B. Minneapolis $750.00. Hispano 220 H.P. complete New boxed New York or Minneapolis $250.00. Hispano 220 H.P. complete slightly used $165.00. OX5 Curtiss overhauled complete boxed F.O.B. Minneapolis $125.00. Resistal goggles, with special pair passenger goggles clear glass $2.60. New and used aeroplanes $650.00 up. Curtiss, Standard, Avro, Thomas Morse. *Parts, propellers, wings, dope, linen.*
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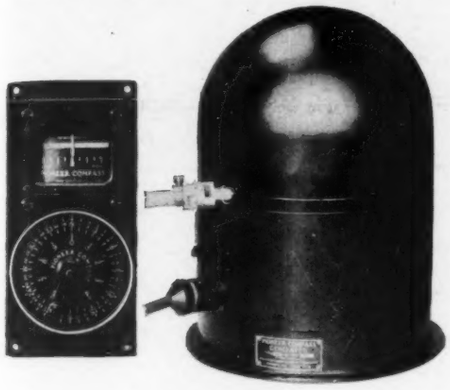
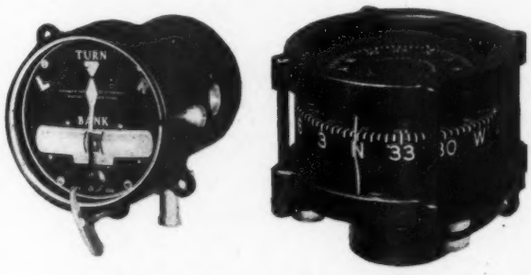
PIONEER AIRCRAFT INSTRUMENTS AND EQUIPMENT

The Pioneer Instrument Company manufactures and sells aircraft instruments and accessories of all types. The accompanying photographs show a few of our many products.



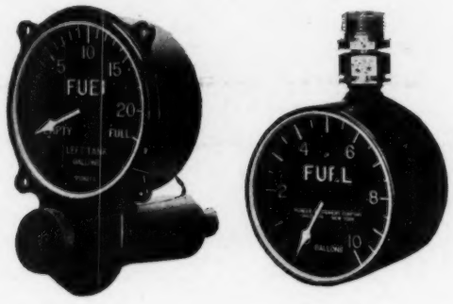
The Pioneer Earth Inductor Compass, which was designed and developed by our Mr. Titterington, is illustrated above. The operation of this instrument is extremely simple. The desired heading is set upon the dials of the controller, and the aircraft then steered to keep the hand of the indicator on zero. The course may be changed, and the controller reset to a new heading, as often as necessary.



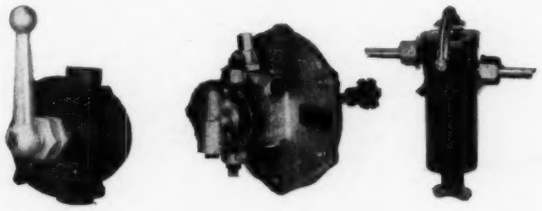
A compass, whether of the earth inductor or magnetic type, is a most necessary instrument for flight over water or unfamiliar country, or in fog, clouds or at night. The Pioneer Magnetic Compass is the result of many years of development and is a highly satisfactory instrument.

It must be understood, however, that there are certain conditions under which a compass cannot be used independently but must be supplemented by a Turn Indicator. Because of errors introduced in turning, a magnetic compass cannot be used to hold an airplane on a straight course unless the ground can be watched for a directional reference. When the ground is not visible a Turn Indicator must be employed to maintain straight flight.

Pioneer Turn Indicators, which are manufactured exclusively by this company under Sperry patents, are standard equipment in the Army, Navy and Post Office Air Services.



Continuous indication of fuel level is given by the Pioneer Fuel Gauges illustrated above. The importance of accurate knowledge of the amount of remaining fuel can hardly be overestimated. With these gauges there is no chance of forced landings due to unexpectedly "running out of gas." These instruments function under all flight conditions, and their accuracy is unaffected by changes in altitude. Pioneer Fuel Level Gauges are particularly valuable on long cross-country flights.



Pioneer Fuel System units are shown above. The Pioneer Hand ("Wobble") Pump is now standard equipment on both Army and Navy planes. Power pumps are built for mounting on various engines. That illustrated is used by the Navy with the Liberty engine. Our strainer is of unusually large capacity, and it can be drained or cleaned without disconnecting the fuel line.

Among other standard Pioneer Instruments and Equipment are Air Distance Recorders, Air Speed Indicators, Altimeters, Drift Indicators, Engine Gauge Units, Flight Indicators, Landing Lights, Navigation Lights, Pressure Gauges, Rate of Climb Indicators, Sextants and Tachometers.

A complete list of our products, and circulars describing many of them, will be mailed on request.

PIONEER INSTRUMENT COMPANY

MAIN OFFICE AND FACTORY BROOKLYN NEW YORK U.S.A.

Wright 200 H.P. Aircooled Engines

OFFER THE FOLLOWING ADVANTAGES

to Air Mail Bidders

Cut the first cost of planes

The first cost of mail planes including new Wright Whirlwind J4 200HP engines is about half the average of the prices recently bid to the P. O. Dept. for mail planes with Liberties. Since the P. O. Dept. makes no guarantees on quantities of air mail the bidder must assume the probable average quantities of mail. A 600 lb. mail load with a Whirlwind is approximately 24,000 letters. If any of these branch lines average as much mail as this they should pay. If they average less why pay more for a large plane to run half empty?

Reduce quantity of planes and spare engines required

Spare planes and spare engines are one of the heaviest expenses of air mail transportation. The ease with which inspections, adjustments and minor repairs are made on Whirlwind engines reduces the quantity of spare engines and spare planes required. Every "stand by" plane and engine cuts into anticipated profits. Planes with Whirlwind engines are more profitable because they are ready to be In The Air more of the time.

Insure regularity of service

The mail planes must be *ready* to leave on schedule time. The turn around time is short. It takes only an hour to change a cylinder or grind a valve in a Whirlwind. Servicing bearings and other parts is proportionately as fast. The mechanic can do almost any job required between runs and Without Taking Engine From Plane.

Cost less to operate

The low cost in time and labor for engine inspection and repairs, the excellent oil and fuel economy (sometimes less than 8 gal. per hr.), the small quantity and reasonable price of spare parts due to the unit construction all make the Whirlwind engines economical to operate.

DURABILITY

A stock Whirlwind engine flew over 100 hrs. at *full throttle* and full RPM without replacement or adjustment of a single part or loss of revs. This is the equivalent of 300 hrs. of normal part throttle flying. Many of the 16 Whirlwinds with the Huff Deland Dusters are over the 100 hr. mark carrying their 600 lbs. of dust with a hard zoom each time the cotton patch is crossed. No greater durability test could be given airplane engines than this daily grind with heavy loads, heat, rain, bad fields, dust, constant take-offs, and operating hundreds of miles from their repair bases. Durability can only be built into an engine or an automobile by constantly improving such parts as are found to give trouble. This is a task of years. A stock production Whirlwind (then Lawrence) won the Marine Trophy at the Detroit Air Meet in 1922. Since then 4 new models have been made with hundreds of changes, most of them for durability.

Decrease liability of crashes

A corollary of engine durability is safety. Dependability next to low cost is the most important characteristic of any transportation equipment. The proved dependability of the Whirlwind engines is one of the best safeguards for safe flying. In the recent Hawaiian maneuvers one squadron of 18 Whirlwinds flew over 2,000 hours with only one forced landing and that due to a stoppage in the fuel tank line.

Give high performance

The saving in weight and resistance of the water radiation systems gives either better performance, higher ceilings, or MORE PAY LOAD.

Winter and Summer Flying

The air cooled Whirlwind engines are better for extreme hot weather flying. Many instances are on record when these air cooled in extremely hot weather were flying perfectly when water cooled could not fly because of boiling. In winter draining radiators, heating water, heated hangars are all obviated by the air cooled.

WARRANTY GUARANTEE

A rigid 90 day "new car warranty" goes with each of these commercial Whirlwind engines. This warranty when backed by a responsible company is a great measure of protection to commercial operators. This warranty has been and will be administered to give real protection.

Service to Customers

We assist our customers in servicing and learning their Whirlwind engines. If they have troubles we send our service men to learn the cause and correct it. This safeguards the purchaser and helps us continue the dependability development of these Whirlwinds. We keep three service men on the road instructing and assisting. When more are needed we will get them. Spare parts are readily obtainable.

With Whirlwind engines your problems are our problems. The Wright Co. can only grow as aviation grows. We will be as earnest a worker for the success of your line as you will be, for *your success is our success.* The advantage of using new engines, made by a strong company strengthened by an unbroken chain of 22 years' experience and which is working to make the Air Mail a National Success will be appreciated by all Air Mail Bidders.

AIR MAIL BIDDERS:—*Write for Bulletin 8A which contains detailed specifications, power curves and full data for these* ***Whirlwind J4 Engines.*** *State the route for which you propose to bid, the probable number of planes you will use, etc.*

WRIGHT AERONAUTICAL CORPORATION, PATERSON, N. J.